377

Zenith A 2221-JJ. Ch. 17A20
2233 HR 17A21Q
2252-ER 2245E 17A30Q
2673-E 2250m-R
A3000E-R 2251E-R
A3001E-HR 2228E-R
A3004-E-R
A-3008E-R.

CONTENTS

PROPERTY OF
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3924 MEADE ST.
DENVER, COLORADO

195

SAMS PHOTOFACT* SET No. 377

*TRADEMARK

TRADE NAME	MODEL	SET AND FOLDER No.
PRODUCTION CHANGE BULLETIN		
Magnavox	Chassis U19-01BB, U19-02BB, V19-01BB, V19-02BB (19 Series) Tel. Rec.	377-1
RCA Victor	21CD7895, U, 21CD7897, U (Ch. CTC5N) Tel. Rec.	377-1
TELEVISION RECEIVERS		
Admiral	CS23A11, 12, 13, 26, 27, CS23B16C, 17C, CS323A6, 7, 16, 17, 19, CS325A6, 7, TS23A1, 2, 3, 6, 7, TS323A1, 2, 2BZ, 3, 3LN (Ch. 19AZ4D, DF, DT, ES, 19SZ4D, DF, DT, ES, FS, PS)	377-2
Airline	GTM-4032A, GTM-4132A	377-3
Hoffman	B1191, U, B1201, U, B1211, U, B3241, U, B3251, U, K1191, U, K1211, U, M1191, U, M1201, U, M1211, U, M3241, U, M3251, U, P1201, U, P1211, U, P3241, U, P3251, U, W1201, U, W3251, U (Ch. 329, U, 330)	377-4
Truetone	2D3770A, B	377-5
OTHER EQUIPMENT		
Arvin	9574P (Ch. 1.43000)	377-6
Crescent	A-744, A-746B, A-746E, A-746M	377-7
General Electric	911D, 912D, 913D, 914D	377-8
International	IL7TC, IL7TC-12	377-9
Knight	93SZ694	377-10
Magnavox	Chassis AMP-162	377-11
Meteor	7000 (Ch. 132.42000)	377-12
Packard-Bell	10RP2, 11RP2	377-13
Pilot	AA-903B	377-14
RCA Victor	6-HFT-1 (TR-1, TR-1A) Recorder	377-15
Sentinel	Chassis AMP-140A, B, C	377-16
Silvertone	5245A, 6233, 6234, A, 6240, 7233, A, 7234, A, 7238, D, 7239, D, 52451A (Ch. 567.36001, 567.36004, 567.36008, 567.36010, 567.36011, 567.42300, 567.42400)	377-17
Truetone	D4826A	377-18

Zenith A-2379J Chassis 19A20
A-2330EHR. 19A20Q
A-2362mR
A-3011-12-13-14
A-4007ER

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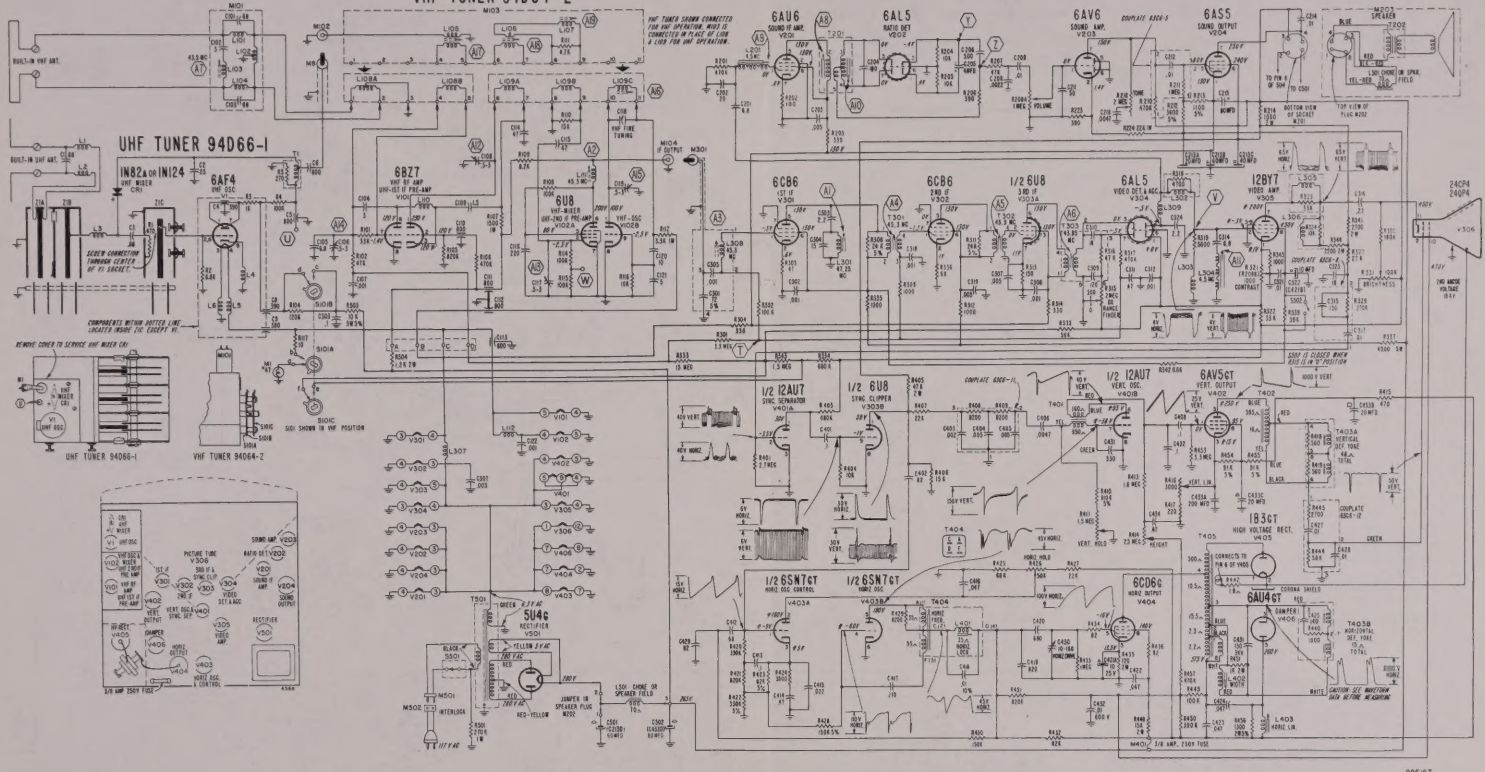
195.



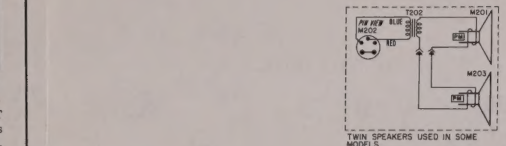
Schematic Diagram Courtesy of the Admiral Corp.

The PHOTOFACT Servicer

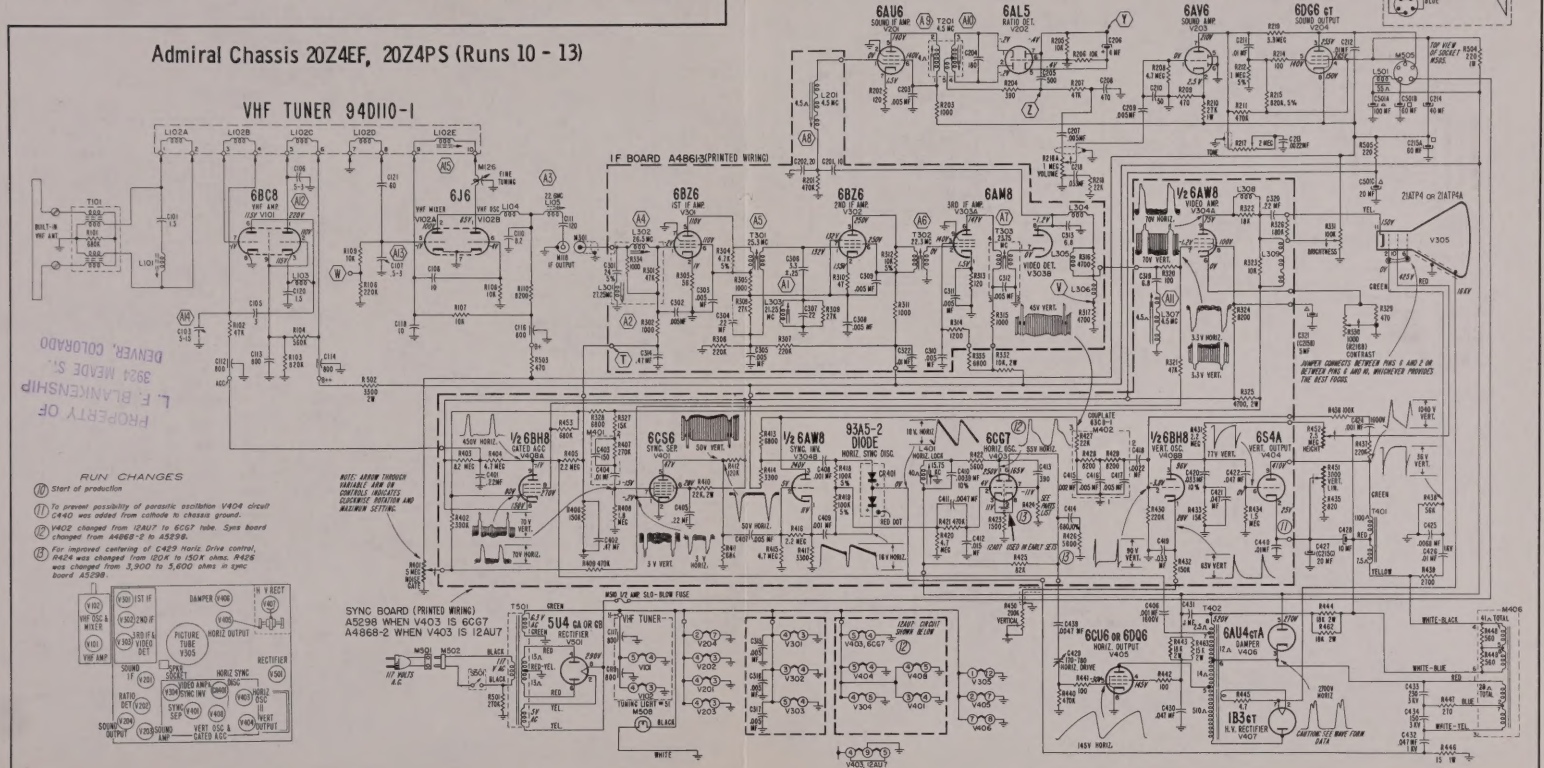
Set 377
Vol. 38

★ *Published for all users of Howard W. Sams' Photofact Folders* ★ **Nov. 1, 1957**

The service information in this Servicer provides data on models which we have been unable to present in PHOTOFACT Folders. The receivers are not in current production; a requirement for PHOTOFACT coverage, and we are therefore presenting schematics that will be of assistance when servicing these models.



Admiral Chassis 20Z4EF, 20Z4PS (Runs 10 - 13)


VHF TUNER 94D110-1
IF BOARD A4861-3 (PRINTED WIRING)
6AU6
6AL5
6AV6
6DG6 GT
6BC8
6J6
6BZ6
6AW8
½ 6AW8
21ATP4 OR 21ATP4A
½ 6BH8
6CS6
93A5-2 DIODE
6CG7
½ 6BH8
6S4A
6CU6 OR 6DQ6
6AU4GTA
1B3GT
5U4 GA OR GB
SYNC BOARD (PRINTED WIRING)
A5298 WHEN V403 IS 6CG7
A4868-2 WHEN V403 IS 12AU7
RUN CHANGES
(10) Start of production
(11) To prevent possibility of parasitic oscillation V404 circuit C440 was added from cathode to chassis ground.
(12) V402 changed from 12AU7 to 6CG7 tube. Sync board changed from A4868-2 to A5298.
(13) For improved centering of C429 Horiz. Drive control, R424 was changed from 120K to 150K ohms. R426 was changed from 3,300 to 5,600 ohms in sync board A5298.
NOTE: ARROW THROUGH VARIABLE ARM OR CONTROLS INDICATES CLOCKWISE ROTATION AND MAXIMUM SETTING.
PICTURE TUBE V305
VHF TUNER
TUNING LIGHT #57 M508
I.F. BLANKENSHIP 3924 MEADE ST. DENVER, COLORADO
PROPERTY OF

Schematic Diagram Courtesy of the Admiral Corp.

PHOTOFACT* Folder
*TRADE MARK

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 9 IN SET 358

RCA VICTOR MODELS 21CD7895, U, 21CD7897, U (Ch. CTC5N)

RCA Victor Models 21CD7895, U, 21CD7897, U, 21CD7915, U, 21CD7916, U, 21CD7917, U, 21CD7935, U, 21CD7936, U, 21CD7956, U, 21CD7958, U, 21CD7975, U, 21CD7996, U, 21CD7999, U (Ch. CTC5AA, AB, N, P, R, T, U, W) were covered in Photofact Folder 9 - Set 358.

The following changes were made in Models 21CD7895, U and 21CD7897, U (Ch. CTC5N) during late production.

Ch. CTC5N

COMPONENT CHANGES

C162 is decreased from .047MFD to .01MFD.

R205 is increased from 47K to 56K.

C164 is decreased from .047MFD to .01MFD.

R199 is increased from 22K to 33K.

C166 is decreased from .047MFD to .01MFD.

R204 is increased from 1000Ω to 10K.

R212 is disconnected from the junction of R222 and R221 and reconnected to the junction of R220 and pin 3 of V25B.

R221 and R222 are omitted.

An 82K, ½ watt resistor is added from pin 8 of V22A to ground.

The voltage source at L47, L48 and L49 is changed from 285V to 390V.

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SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 6 IN SET 360

MAGNAVOX CHASSIS U19-01BB, U19-02BB, V19-01BB, V19-02BB (19 Series)

Magnavox Chassis U19-01AA, U19-02AA, V19-01AA and V19-02AA were covered in Photofact Folder 6 - Set 360.

Chassis U19-01BB, U19-02BB, V19-01BB and V19-02BB are electrically identical to the chassis covered, except for the following changes.

COMPONENT CHANGES

A 3.3 microhenry choke (part #360601-6) is added between pins 2 and 5 of the deflection yoke plug.

R64 is decreased from 100K to 82K, part #230094-205.

R70 is decreased from 560Ω to 470Ω, part #230105-58.

A 10K, ½ watt resistor (part #230104-74) is added from pin 7 of V14 in series with the high voltage anode lead.

R50 is increased from 1Meg to 1.2Meg, part #230094-233.

C47 is changed to part #250240-7.

C54 is changed to part #250236-24.

C63 is increased from 120MMF to 160MMF, part #250236-25.

A 1500MMF @ 500V ceramic disc capacitor (part #250234-46) is added from the junction of R68 and R69 to ground.

A 680MMF @ 500V ceramic disc capacitor (part #250234-138) is added from pin 4 of V6 to ground.

PRODUCTION CHANGES
BULLETIN 192

PRODUCTION CHANGES
BULLETIN 192

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FOLDER 1

PHOTOFACT* Folder

*TRADE MARK

RETMA MEMBER

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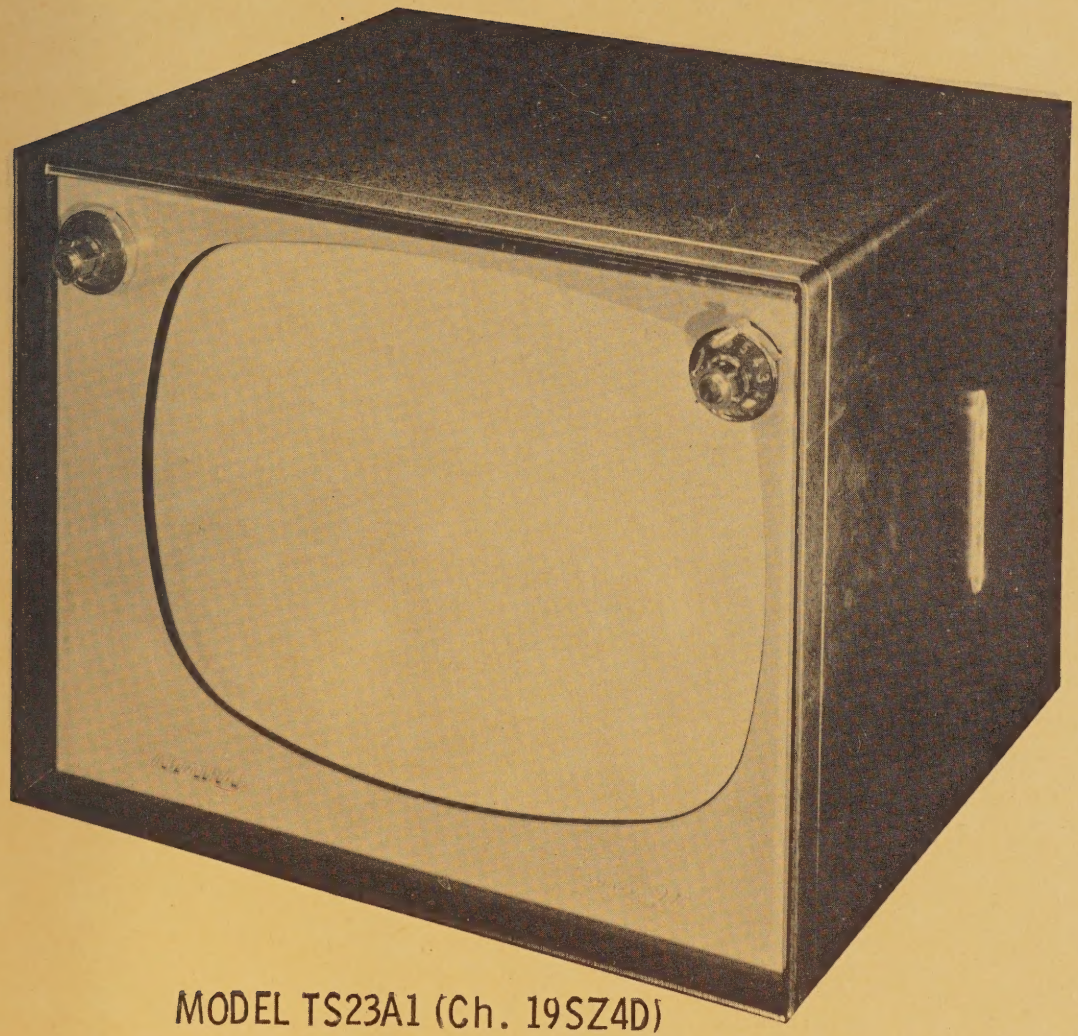

MODEL TS23A1 (Ch. 19SZ4D)

ADMIRAL MODELS CS23A11, 12, 13, 26, 27, CS23B16C, 17C, CS323A6, 7, 16, 17, 19, CS325A6, 7, TS23A1, 2, 3, 6, 7, TS323A1, 2, 2BZ, 3, 3LN (Ch. 19AZ4D, DF, DT, ES, 19SZ4D, DF, DT, ES, FS, PS)

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PHOTOFACT* Folder
*TRADE MARK

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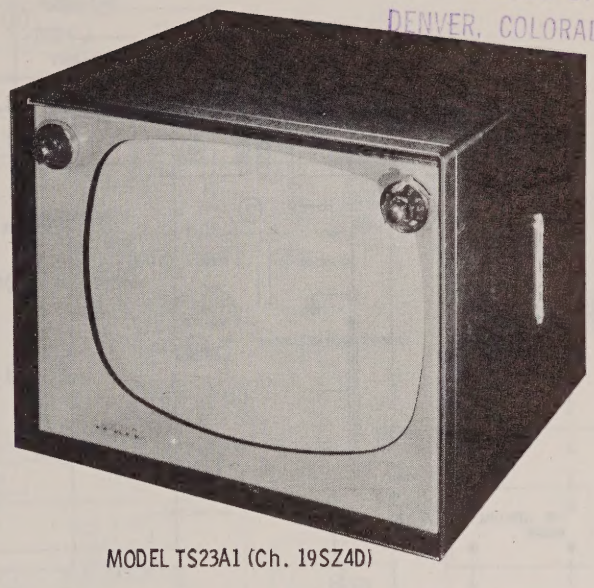
DENVER, COLORADO

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 5 push-on type knobs from the front.
2. Slide 7 clamps inward and remove the rear cover.
3. Remove 4 metal screws and the side control panel.
4. Remove 2 metal screws and the AC interlock.
5. Depress 2 spring clips and remove the volume control assembly.
6. Remove the picture tube socket, ion trap, yoke clamp, HV lead, speaker plug and dial light leads.
7. Remove 1 metal screw from the top chassis brace.
8. Remove 4 chassis bolts from the bottom.
9. Remove the chassis.
10. Remove 2 speaker nuts and the speaker.



MODEL TS23A1 (Ch. 19SZ4D)

ADMIRAL MODELS CS23A11, 12, 13, 26, 27, CS23B16C, 17C, CS323A6, 7, 16, 17, 19, CS325A6, 7, TS23A1, 2, 3, 6, 7, TS323A1, 2, 2BZ, 3, 3LN (Ch. 19AZ4D, DF, DT, ES, 19SZ4D, DF, DT, ES, FS, PS)

TRADE NAME	Admiral	MODELS	CHASSIS
		CS23A11, CS23A12, CS23A13, TS23A6, TS23A7	19SZ4DT
		CS23B16C, CS23B17C	19SZ4DF
		CS23A26, CS23A27, CS323A6, CS323A7, CS323A16, CS323A17, CS323A19	19SZ4ES
		CS325A6, CS325A7	19SZ4FS
		TS23A1, TS23A2, TS23A3	19SZ4D
		TS323A1, TS323A2, TS323A2BZ, TS323A3, TS323A3LN	19SZ4PS
			19AZ4D
			19AZ4DF
			19AZ4DT
			19AZ4ES
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois		
TYPE SET	Television Receiver		
TUBES	Twenty		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 170 Watts, 1.5 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 5 push-on type knobs from the front. Remove 3 metal screws and the trim along the top of the safety glass. Remove the safety glass.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 2 or 6 and 10. Readjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The horizontal frequency coil is used as the horizontal hold control. Adjust the horizontal hold until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A10) located on bottom of chassis.

FUSES

One fuse is used for LV power supply protection. (For location, see tube placement chart) .

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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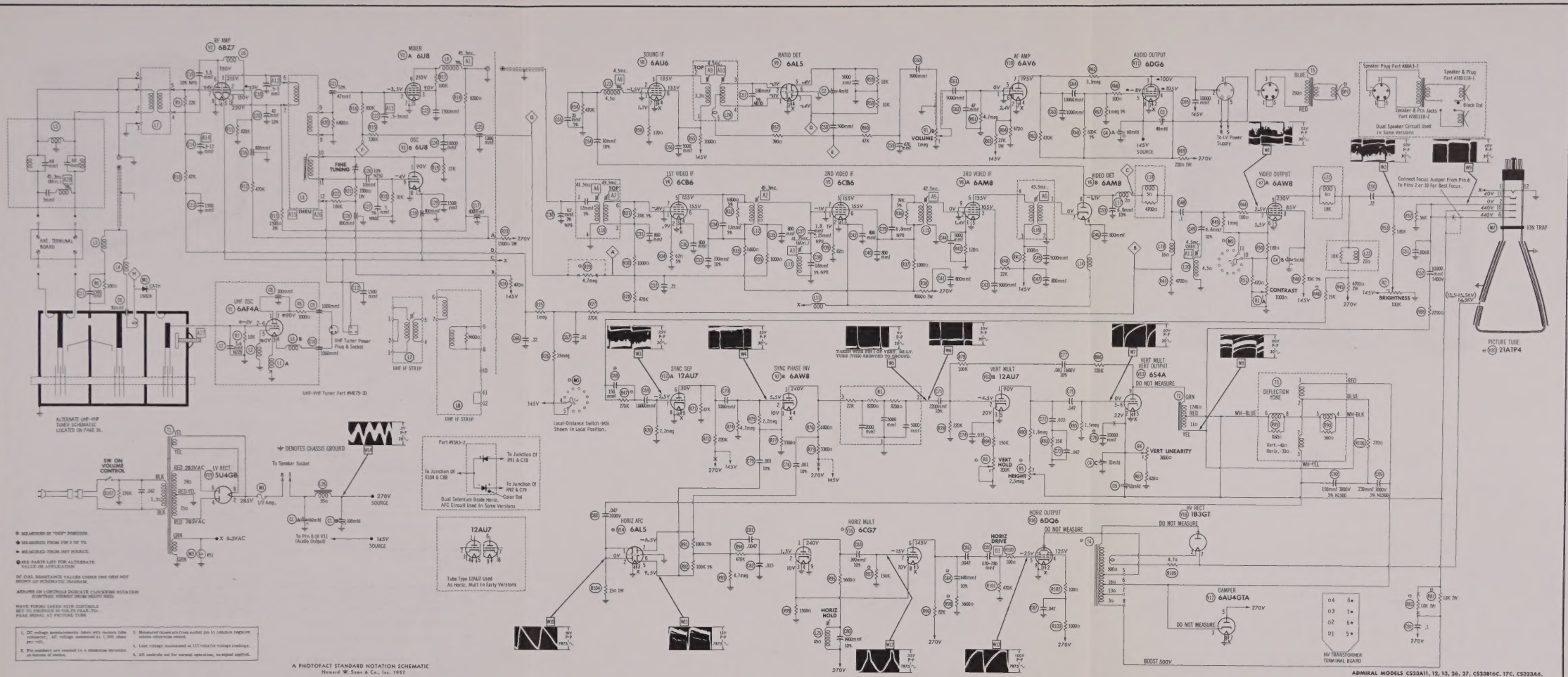
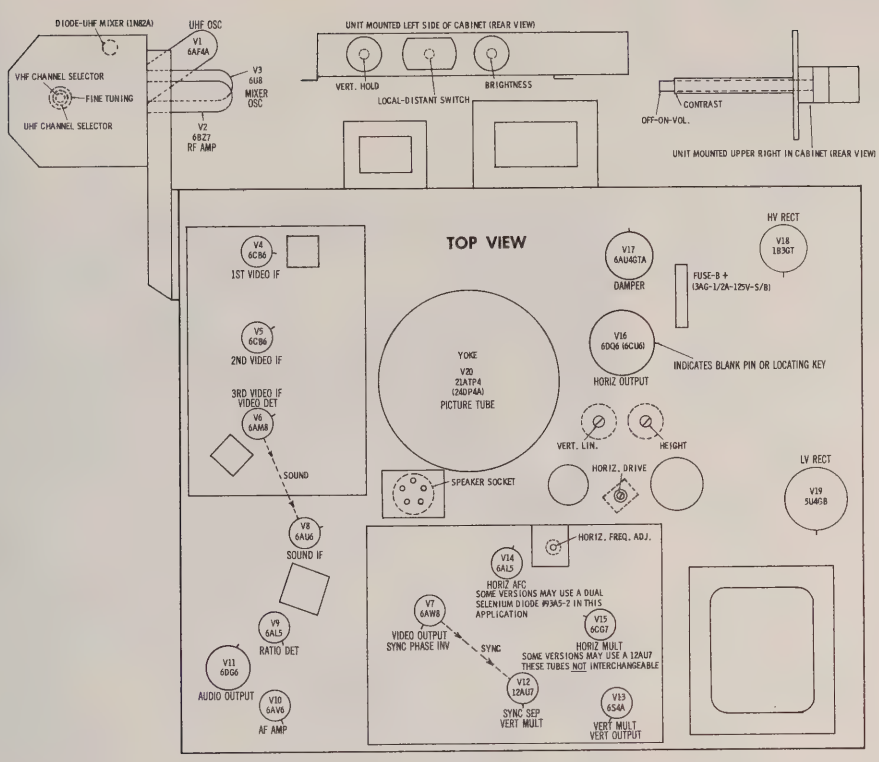


A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

ADMIRAL MODELS CS23A11, 12, 13, 26, 27, CS23B16C, 17C, CS23A6, 7, 16, 17, 19, CS23SA6, 7, TS23A1, 2, 3, 6, 7, TS23SA1, 2, 28Z, 3, 3LN (Ch. 19AZ4D, DF, DT, ES, 19SZ4D, DF, DT, ES, FS, PS)

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

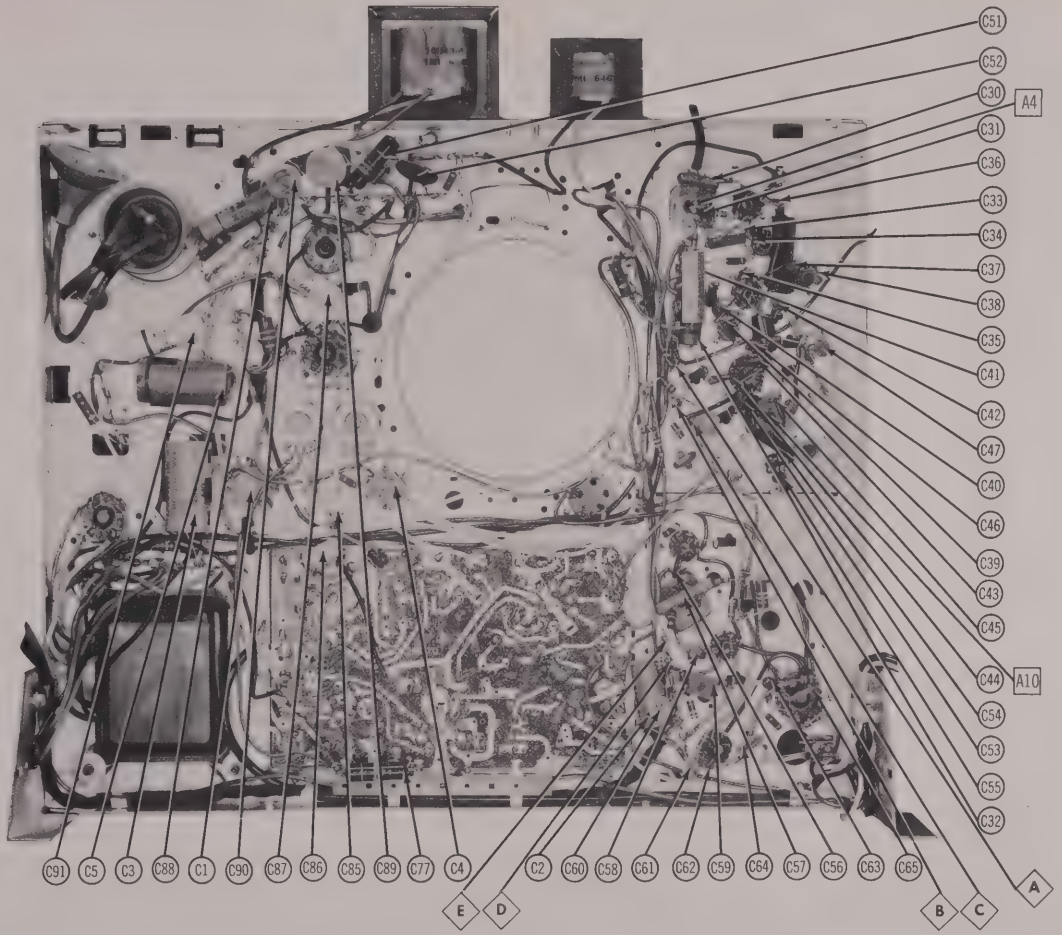
The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **Fuse (M1), V19**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V4, V5, V6, V11**
No pic, no sound, has snow - **V2, V3, V4, V11 (V1, UHF only)**
No pic, has sound, has raster - **V7, V20, V11**
Has pic, no sound - **V8, V9, V10, V11**

SYNC FAILURE
No vert. sync - **V12, V7, V11**
No horiz. sync - **V12, V7, V14, V11**
No vert. or horiz. sync - **V12, V7, V11**

SWEEP FAILURE
No raster, has sound - **V14, V15, V16, V17, V18, V20**
No vertical deflection - **V12, V13**
Poor vert. linearity or foldover - **V12, V13**
Poor horiz. linearity or foldover - **V15, V16, V17**
Narrow picture - **V15, V16, V17, V19**
Vert. off freq. - **V12, V13**
Horiz. off freq. - **V15**



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

ADMIRAL MODELS 5S33A(1), 12, 13, 26, 27, 5S38(1)C, 17C, 5S32A6, 7, 16, 17, 19, 5S32A5, 7, 15S32A1, 2, 3, 4, 7, 8, 15S32A1, 2, 3, 3JN (Ch. 19A24D, DF, DT, ES, 19S24D, DF, DT, ES, FS, FS)

FOLDER 2

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 4 volt bias supply to point Ⓐ . Positive to chassis. NOTE: For step 2, the bias at point Ⓐ should be reduced to 1.5 volts.
Disconnect the antenna leads from the antenna terminals of the receiver and connect a jumper wire across the terminals.
Set the contrast control fully counter clockwise.
Connect a 270MMF capacitor across the input terminals of the VTVM and the scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough generator output to provide a usable indication on VTVM.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer-oscillator tube (V3). Low side to chassis.	Not used	45.3MC	Any non-interfering channel	USE VTVM. DC probe thru 10K to point Ⓑ . Common to chassis.	A1, A2	Adjust for maximum deflection.
2.	"	"	"	41.25MC	"	"	A3	Adjust for MINIMUM deflection.
3.	"	"	"	41.5MC	"	"	A4	Adjust for maximum deflection.
4.	"	"	"	42.5MC	"	"	A5	"
5.	"	"	"	43.5MC	"	"	A6, A7	Adjust for maximum deflection. Repeat step 1. Repeat step 5. Repeat step 4. Repeat step 3. If more than 1/4 turn is required to peak A4 in this step, it will be necessary to repeat adjustments of A2 and A6. Repeat adjustments of A2, A4 and A6 for optimum results.
6.	"	"	44.5MC (10MC Swp)	41.25MC 42.25MC 43.0MC 45.0MC 45.75MC	"	Vert. Amp. thru 10K to point Ⓑ . Low side to chassis.		Check for response similar to Fig. 1 with markers as indicated. If necessary, re-touch A2, A4, A5, A6 and A7 SLIGHTLY for desired response.

SOUND IF ALIGNMENT

Use a TV signal, if available. If not, use a crystal controlled 4.5MC signal.
Set the contrast control fully counter clockwise.
Use a non-metalic alignment tool for adjusting slugs.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.01MFD	High side to point Ⓒ . Low side to chassis.	4.5MC (Unmod or station signal)	Any non-interfering channel if signal generator is used.	DC probe to point Ⓓ . Common to chassis.	A8, A9	Adjust for maximum deflection. Keep reducing signal to keep VTVM at approximately 1 volt.
8.	"	"	"	"	DC probe to point Ⓔ . Common to chassis.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
9.	"	"	"	"	DC probe to point Ⓓ . Common to chassis.	A11	Connect a clip lead across L18. Adjust A11 for MINIMUM deflection. Remove clip lead from L18.

VHF RF AND MIXER ALIGNMENT FOR TUNER #94E75-20

Connect the negative lead of a 3 volt bias supply to point Ⓐ . Positive to chassis.
Connect a clip lead from point Ⓖ to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓕ . Low side to chassis.	A12, A13	Adjust for response curve similar to Fig. 2 with markers above 90%.
11.	"	"	85MC	83.25MC 87.75MC	6	"	A14	Adjust for response curve similar to Fig. 2. Adjust for maximum amplitude and flat-topped appearance with markers properly positioned.
12.	"	"	213MC	211.25MC 215.75MC	13	"		Check for response curve similar to Fig. 2. If markers fall below 70% on any high band channel, make compromise adjustment of A12 and A13 with channel switch set to that channel. If markers fall below 70% on any low band channel, make compromise adjustment of A14 with channel selector set to that channel. Check all other channels to see that they have not been seriously affected.
			207MC	205.25MC 209.75MC	12			
			201MC	199.25MC 203.75MC	11			
			189MC	187.25MC 191.75MC	9			
			183MC	181.25M 185.75MC	8			
			177MC	175.25MC 179.75MC	7			
			79MC	77.25MC 81.75MC	5			
			69MC	67.25MC 71.75MC	4			
			63MC	61.25MC 65.75MC	3			
			57MC	55.25MC 59.75MC	2			

ALIGNMENT INSTRUCTIONS (cont)

VHF OSCILLATOR ALIGNMENT FOR TUNER #94E75-20

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point Ⓑ. Low side to chassis.	A15	Adjust to place sound marker in trap notch as in Fig. 3. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A16	
			201MC	199.25MC 203.75MC	11		A17	
			195MC	193.25MC 197.75MC	10		A18	
			189MC	187.25MC 191.75MC	9		A19	
			183MC	181.25MC 185.75MC	8		A20	
			177MC	175.25MC 179.75MC	7		A21	
			85MC	83.25MC 87.75MC	6		A22	
			79MC	77.25MC 81.75MC	5		A23	
			69MC	67.25MC 71.75MC	4		A24	
			63MC	61.25MC 65.75MC	3		A25	
			57MC	55.25MC 59.75MC	2		A26	

UHF IF ALIGNMENT FOR TUNER #94E75-20

Connect the negative lead of a 3 volt bias supply to point Ⓐ. Positive to chassis.
Remove the IF input cable from the tuner IF output socket.
Remove crystal diode (M2) from its holder in the UHF tuner.
Connect a clip lead from point Ⓖ to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	100Ω	High side to point Ⓗ. Low side to chassis.	43.5MC	41.25MC 45.75MC	UHF	Vert. Amp. thru 10K to point Ⓕ. Low side to chassis.	A27	Adjust for maximum gain and symmetry of response similar to Fig. 4 with markers as shown.
15.	"	"	"	"	"	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis.		Reinsert IF input cable. Increase bias at point Ⓐ to -6 volts. Check for response curve similar to Fig. 3. If necessary, make compromise adjustment of A27 for desired response.

INTERFERENCE TRAP ADJUSTMENT

Connect the negative lead of a 1.5 volt bias supply to point Ⓐ. Positive to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
16.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	43.5MC (Unmod)	2	DC probe thru 10K to point Ⓑ. Common to chassis.	A28	Adjust for MINIMUM deflection.

VHF OSCILLATOR ALIGNMENT FOR TUNER #94E144-4

Always adjust lowest channel available first, then work up in numerical order to the highest.
Turn the set on and allow 15 minute warm-up period.
Set the channel selector to the lowest channel operating in the area and set the fine tuning to the center of its range. To set the fine tuning, turn the fine tuning in either direction two complete turns and then in the opposite direction one-quarter turn.
Set other controls for normal picture and sound.
Remove the channel selector, fine tuning and the UHF indicator knobs and the retainer disc.
Using a 1/8th inch non-metallic tool carefully adjust the oscillator slug for best picture and sound. (Note that this may not be the point of loudest sound. When two slugs are visible at the adjustment holes, adjust the upper slug.)
Repeat this procedure for remaining channels.

VHF RF AND MIXER ALIGNMENT FOR TUNER #94E144-4

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

UHF TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

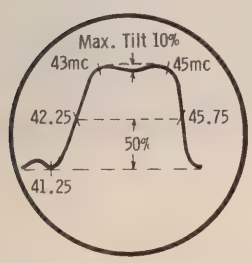


FIG.1

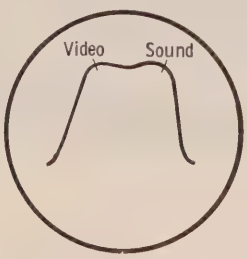


FIG.2

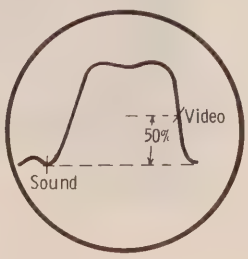


FIG.3

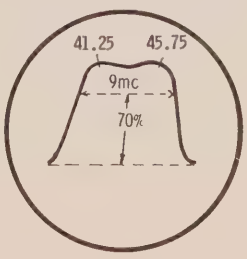
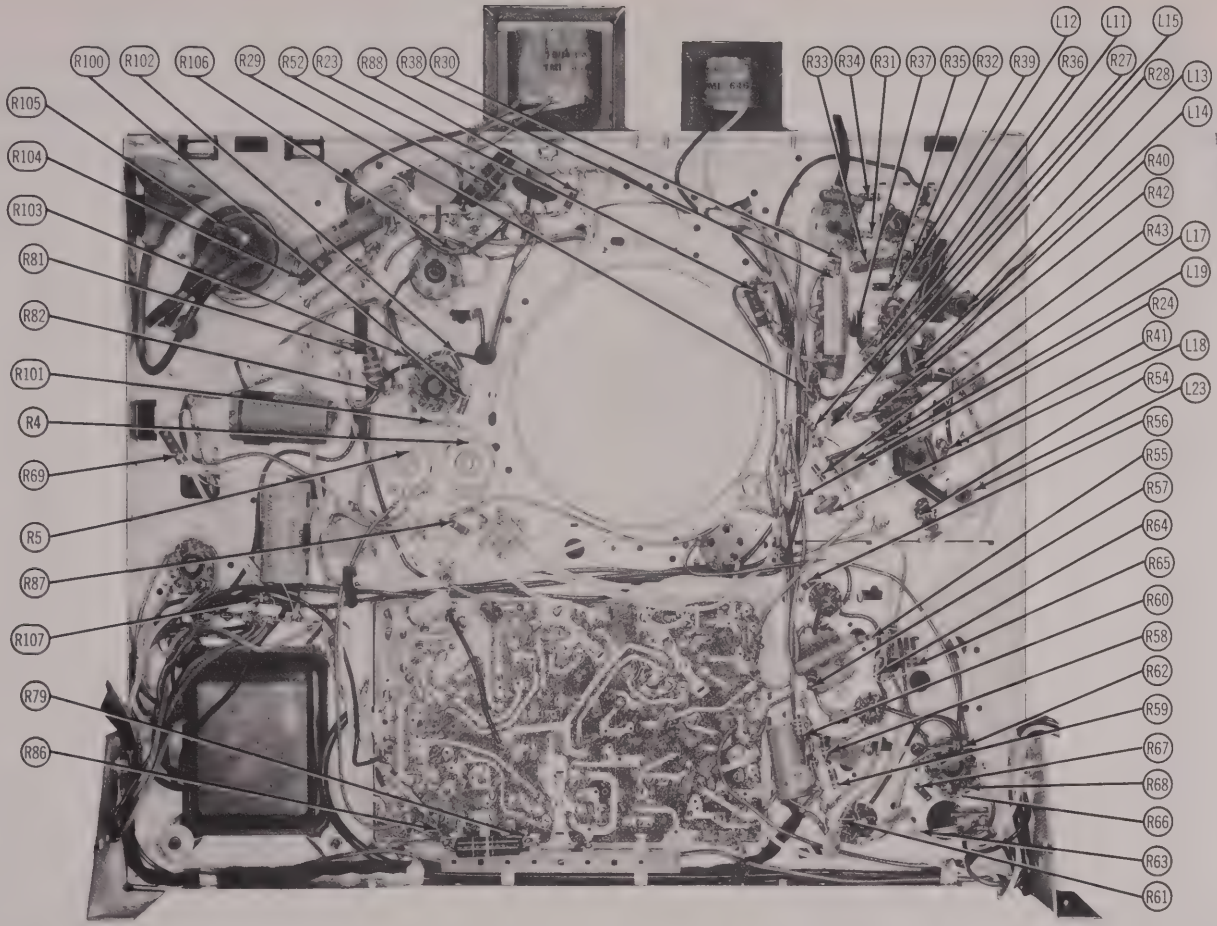


FIG.4

ADMIRAL MODELS CS23A11, 12, 13, 26, 27, CS23B16C, 17C, CS323A6, 7, 16, 17, 19, CS325A6, 7, TS23A1, 2, 3, 6, 7, TS323A1, 2, 2BZ, 3, 3LN (Ch. 19AZ4D, DF, DT, ES, 19SZ4D, DF, DT, ES, FS, PS)

FOLDER 2



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

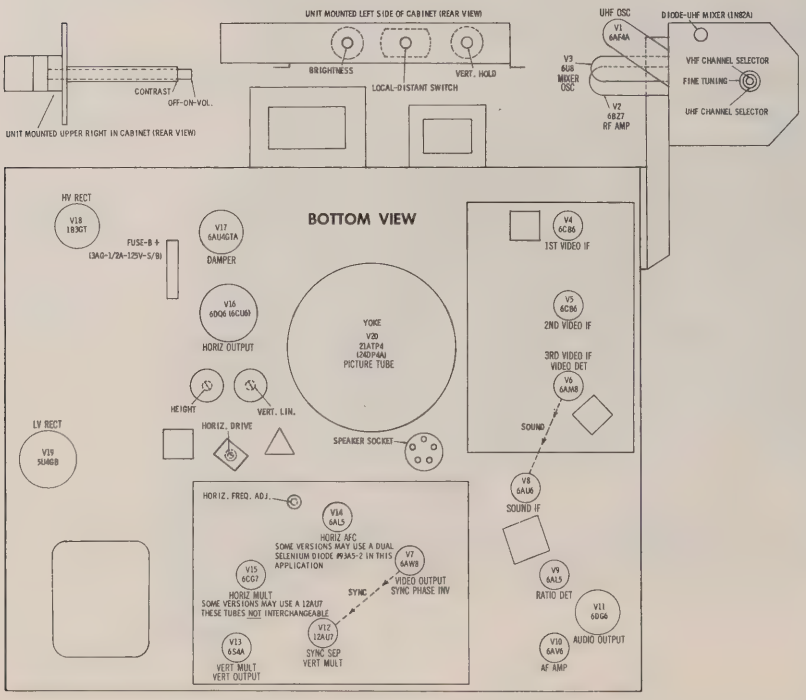
ADMIRAL MODELS 5S23A11, 12, 13, 26, 27, 5S23B16C, 17C, 5S23J46, 7, 16, 17, 19, 5S23J46, 7, 19J3A1, 2, 3, 6, 7, 19J3A1, 2, 28Z, 3, 31M (Ch. 19AZ4D, DF, DT, ES, 19SZ4D, DF, DT, ES, FS, PS)

FOLDER 2

RESISTANCE MEASUREMENTS

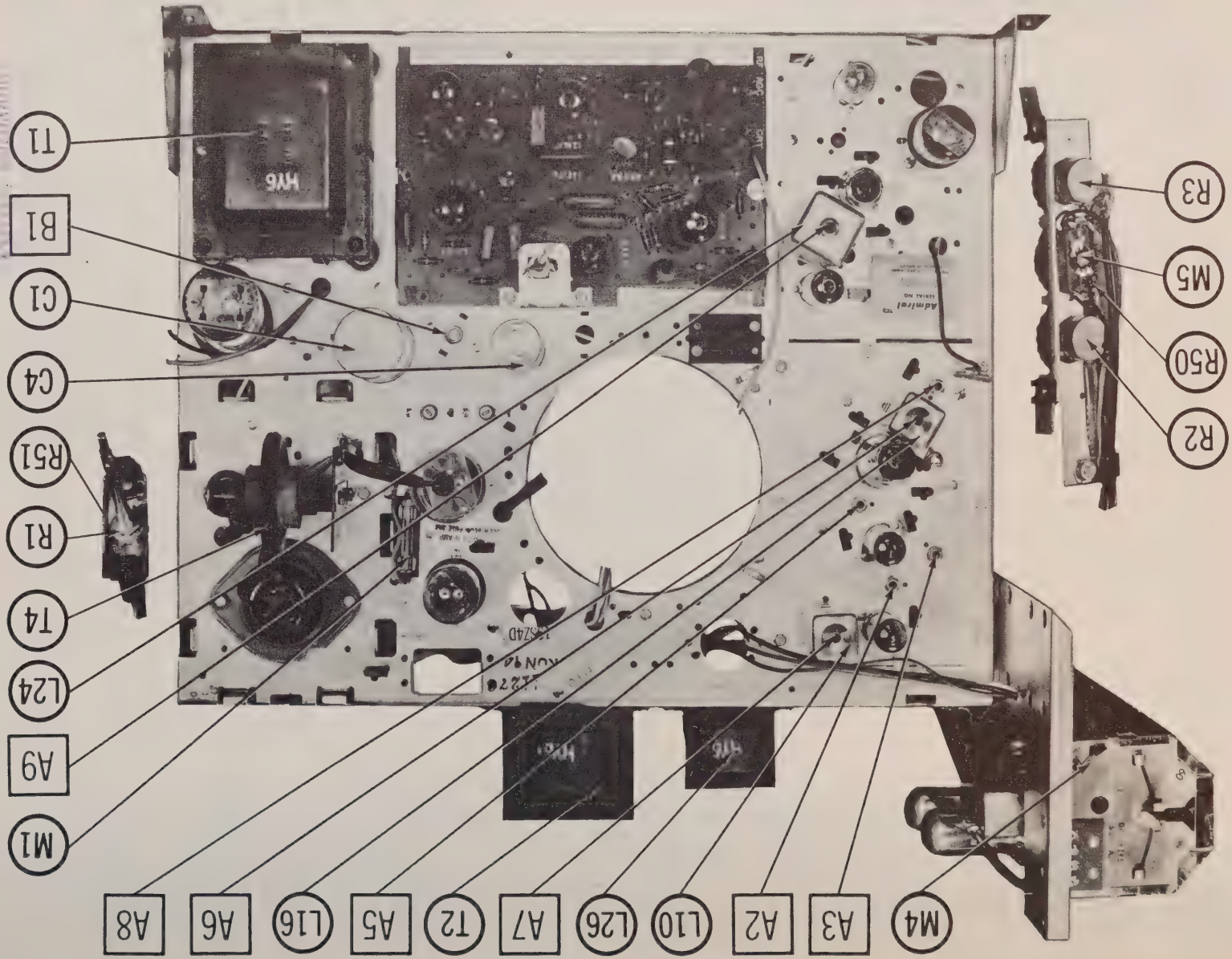
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AF4A	▪ 4700Ω	10K	0Ω	.2Ω	0Ω	10K	▪ 4700Ω		
V2	6BZ7	† 3000Ω	300K	INF	0Ω	.1Ω	INF	1.3Meg	0Ω	† 3000Ω
V3	6U8	▪ 4700Ω	5Meg	† 108K	.1Ω	0Ω	† 9700Ω	0Ω	0Ω	10K
V4	6CB6	470K	62Ω	0Ω	.1Ω	† 5000Ω	† 5000Ω	0Ω		
V5	6CB6	470K	82Ω	.1Ω	0Ω	† 5000Ω	† 5000Ω	0Ω		
V6	6AM8	120Ω	.1Ω	▪ 22K	.1Ω	0Ω	▪ 1000Ω	.1Ω	4700Ω	0Ω
V7	6AW8	3300Ω	1.6Meg	▪ 10K	.1Ω	0Ω	500Ω	1Meg	▪ 30K	† 4700Ω
V8	6AU6	470K	0Ω	0Ω	.1Ω	▪ 1000Ω	▪ 1000Ω	120Ω		
V9	6AL5	INF	INF	0Ω	.1Ω	10K	0Ω	10K		
V10	6AV6	4.7Meg	470Ω	0Ω	.1Ω	0Ω	0Ω	† 400K		
V11	6DG6	TP	.1Ω	† 520Ω	† 275Ω	450K	TP	0Ω	¶	
V12	12AU7	• ‡ 3.5Meg	220K	• 160K	0Ω	0Ω	† 35K	2.2Meg	0Ω	.1Ω
V13	6S4A	NC	• 1400Ω	1.5Meg	0Ω	.1Ω	1.5Meg	NC	NC	• ‡ 11K
V14	6AL5	15Ω	15Ω	.1Ω	0Ω	4.8Meg	0Ω	4.8Meg		
V15	6CG7	† 5600Ω	5.1Meg	1500Ω	0Ω	.1Ω	† 82K	150K	1500Ω	0Ω
V16	6DQ6	TP	.1Ω	TP	▪ 1100Ω	470K	TP	0Ω	0Ω	TOP CAP ‡16Ω
V17	6AU4GTA	NC	NC	¶	NC	† 55Ω	NC	.1Ω	0Ω	
V18	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡516Ω
V19	5U4GB	NC	¶	NC	25Ω	NC	24Ω	NC	¶	
V20	21ATP4	.1Ω	56K	PIN 6 ‡9000Ω	PIN 10 ‡ 9000Ω	PIN 11 • 200K	PIN 12 0Ω			

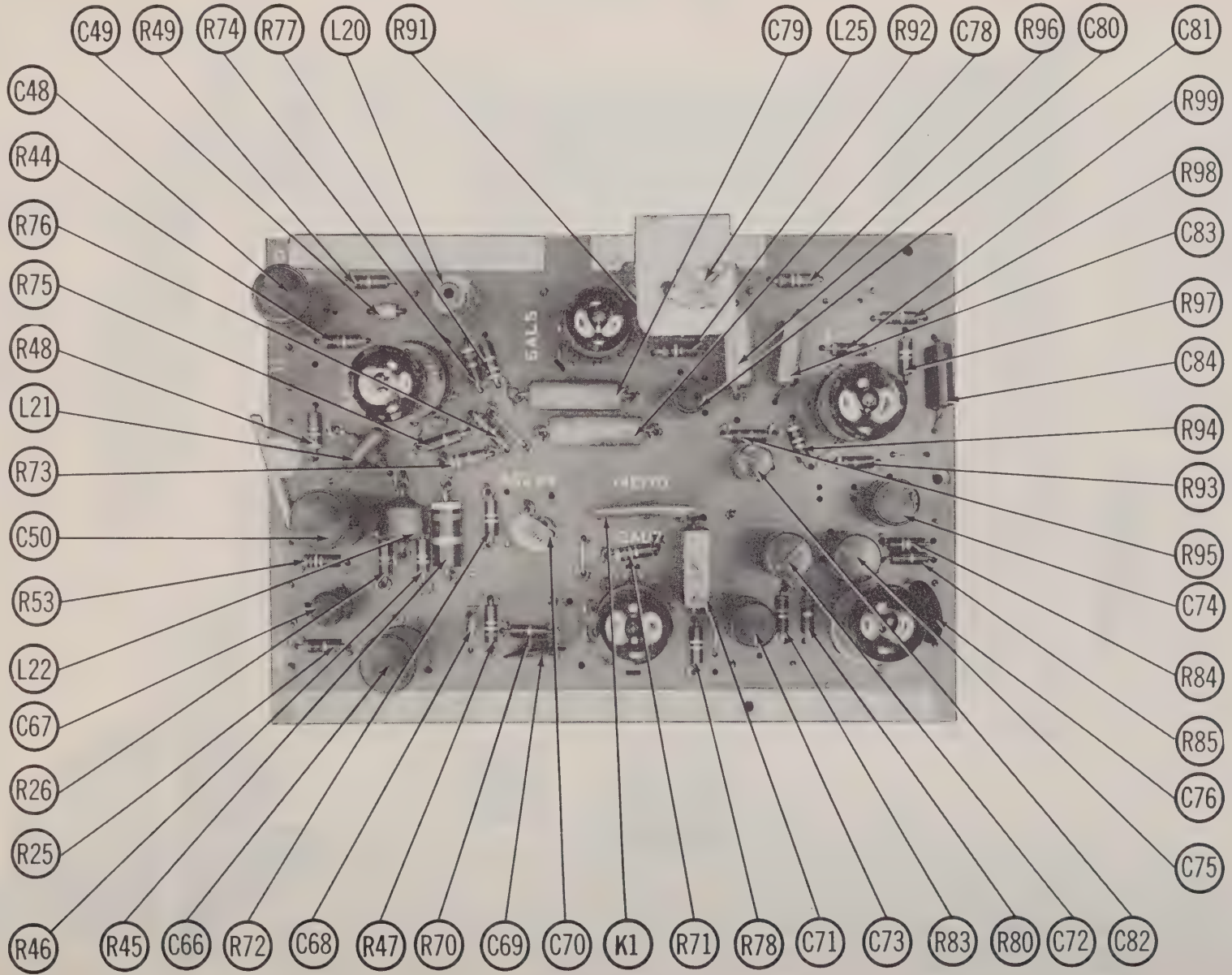
† MEASURED FROM PIN 2 OF V19.
‡ MEASURED FROM PIN 3 OF V18.
▪ MEASURED FROM 145V SOURCE.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
NC NO CONNECTION.
TP TIE POINT.



TUBE PLACEMENT CHART

CHASSIS TOP VIEW





PRINTED BOARD

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	UHF Oscillator	6AF4A	
V2	RF Amplifier	6BZ7	
V3	Mixer-Oscillator	6U8	
V4	1st. Video IF Amp.	6CB6	
V5	2nd. Video IF Amp.	6CB6	
V6	3rd. Video IF Amp. - Video Det.	6AM8	
V7	Video Output- Sync Phase Inv.	6AW8	
V8	Sound IF Amp.	6AU6	
V9	Ratio Detector	6AL5	
V10	AF Amplifier	6AV6	
V11	Audio Output	6DG6	
V12	Sync Sep. -Vert. Mult.	12AU7	
V13	Vert. Mult. -Vert. Output	6S4A	
V14	Horiz. AFC	6AL5	Note 1
V15	Horiz. Mult.	6CG7	Note 2
V16	Horiz. Output	6DQ6	Note 3
V17	Damper	6AU4GTA	
V18	HV Rectifier	1B3GT	
V19	LV Rectifier	5U4GB	

Note 1. Some versions may use a dual selenium diode (Part #93A5-2) in this application.
Note 2. Some versions may use a 12AU7 in this application. NOTE: These tubes are NOT interchangeable.
Note 3. Some versions may use a 6CU6 in this application.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA			NOTES
	ADMIRAL PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V20	21ATP4	21ATP4A/ 21ATP4 ②	21ATP4A① 21ATP4/ 21ATP4A①	① Silver screen "85" ② Aluminized
	24DP4A	24DP4A/ 24YP4 ②	24DP4A ① 24DP4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲60	350	67D15-110	AFH3-29-25	CO234	FP330.9	TMT-164	D-177 MT-4520	TVL-2639
B	▲100	350							
C2	4	50	67A4-9	SRE50V5	BBR4-50	TC30	TD-4-50	MT-0504	TVA-1303
C3	40	200	67A4-21	PRS250V40	BR4025	TC58	TD-40-250	MT-2540	TVA-1511
C4A	■60	200	67D15-109	AFH3-84-50	CO636	FP217.8 TC50X		T-395 MT-2504	TVL-3467
B	▲5	200							
C	20	50							
C5	10	500	67A-34	PRS500V10	BR1250	TC82	TD-10-500	MT-5010	TVA-1963

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	30		94E75-119							
C7	3.6		94E75-138							N220
C8	200		94E75-120							
C9	1000		94D64-121	EF-001	MFT-1000				503C-D1	
C10	1000		94D64-121	EF-001	MFT-1000				503C-D1	
C11	1500		94E75-118	BPD-0015	DD-152	BYA10D15	ED-0015	DC5215	5HK-D15	
C12	1500		94E75-118	BPD-0015	DD-152	BYA10D15	ED-0015	DC5215	5HK-D15	
C13	1500		94E75-118	BPD-0015	DD-152	BYA10D15	ED-0015	DC5215	5HK-D15	
C14	3-12		94E75-146							
C15	3.0		94D64-86	NP0-SI 3.0						NP0
C16	800		94C37-90							
C17	800		94C37-90							
C18	.5-3		98A45-23		829-3		3115-D	CT565A		
C19	800		94C37-90							
C20	47		94D64-88	NP0-SI 47	D6-470	L10Q47	ED-47		5TCC-Q47	10%
C21	47		94E75-121							10%
C22	.5-3		98A45-23		829-3		3115-D	CT565A		
C23	1500		94E75-118	BPD-0015	DD-152	BYA10D15	ED-0015	DC5215	5HK-D15	
C24	10000		65D10-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C25	1000		94D64-121	EF-001	MFT-1000				503C-D1	
C26	10		94D64-91	N750-SI 10	TCN-10	C10Q1U	TC7-10	NT-541	5TCU-Q1	N750 10%
C27	5		94D64-100							N900 5%
C28	800		94C37-90							
C29	1500		94E75-118	BPD-0015	DD-152	BYA10D15	ED-0015	DC5215	5HK-D15	
C30	62		65C6-114							NP0 3%
C31	800		65D10-29	BPD-0008	DD-801	L10T8			5GA-T8	
C32	.22	100	64A10-6	P288N-22		CUB2P22		GEM-2022	2TM-P22	
C33	330		65B21-331	1469-00033		5R5T33			MS-333	10%
C34	12		65C6-49		TCZ-12		TCO-12			5%
C35	800		65D10-29	BPD-0008	DD-801	L10T8			5GA-T8	
C36	800		65D10-29	BPD-0008	DD-801	L10T8			5GA-T8	
C37	1.8		65C6-101							NP0 ± .25MMF
C38	18		65C6-91		TCZ-18	C10Q18C	TCO-18			NP0 5%
C39	6.8		65C6-100	NP0-SI 6.8	TCZ-6R8	C10V68C	TCO-6.8	ZT-5568	5TCCB-V68	NP0 ± .25MMF
C40	800		65D10-29	BPD-0008	DD-801	L10T8			5GA-T8	
C41	800		65D10-29	BPD-0008	DD-801	L10T8			5GA-T8	
C42	800		65D10-29	BPD-0008	DD-801	L10T8			5GA-T8	
C43	5000		65D10-5	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C44	5000		65D10-5	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C45	5000		65D10-5	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C46	800		65D10-29	BPD-0008	DD-801	L10T8			5GA-T8	
C47	800		65D10-29	BPD-0008	DD-801	L10T8			5GA-T8	
C48	.1	400	64B16-53		DF-104	BC6P1J		ACE601	4SE-P10	
C49	6.8		65B28-068	NP0-SI 6.8	TCZ-6R8	C10V68C	TCO-6.8	ZT-5568	5TCCB-V68	10%
C50	.22	400	64B16-28			BC6P22J		ACE6022	4SE-P22	
C51	.0068	600	64B8-14	BPD-0068	DD-682	CUB6D68	ED-0068	GEM-6268	6TM-D68	
C52	10000	1400	65D10-65	DAC-27		HVE16S1		GEM-1611	BLS10	
C53	6.8		65B28-068	NP0-SI 6.8	TCZ-6R8	C10V68C	TCO-6.8	ZT-5568	5TCCB-V68	10%
C54	10		65C6-44	NP0-SI 10	TCZ-10	L10Q1	TCO-10	ZT-541	5TCC-Q1	10%
C55	20		65C6-51		TCZ-20					5%
C56	5000		65D10-5	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C57	180		65D6-59							N030 5%
C58	500		65D6-6	BPD-0005	DD-501	L10T5	ED-500	UC-535	5GA-T5	
C59	470		65D10-70	1467-00047		5W5T47			1FM-347	
C60	5000		65D10-5	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	

L. I. [illegible] OF CONSUME
[illegible] AVENUE S.
OLIVER, COLORADO

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C82	5000		85D10-5	BPD-005	DD-501	BYA10D5	ED-005	DCS25	38E-.01	
C83	47		85D6-4	1464-00004?		2285J47			1FM-047	
C84	10000		85D20-42	BPD-001	DD-102	BYA42B	ED-001	DCS2	5HK-01	
C84	10000		85D10-3	BPD-01	DD-103	BYA8B1	ED-01	DCS1	5HK-01	
C85	10000		85D10-3	BPD-01	DD-103	BYA8B1	ED-01	DCS1	5HK-01	
C86	22	200	84B16-41			BC3F22J		20E-F22	ACE6322	
C87	.01	400	84D16-59			BC4B1J		ACE81	46E-010	
C88	.01		83D20-03	BPD-00025	DD-181	LU7Y18	ED-150	ACE6147	SCA-715	1
C89	10000		85D20-3	BPD-01	DD-103	BYA8B1	ED-01	DCS1	5HK-01	
C90	5000		85D20-5	BPD-005	DD-501	BYA10D5	ED-005	DCS25	38E-.05	
C91	2500		85B16-2225	1464-00023		1R6D82		BCS8332	38E-.025	10%
C92	.033	600	84B15-10			BC8E33J			46E-033	
C93	.033	400	84B16-31			BC8E33J		ACE8147	38E-047	
C94	.033	400	84B16-33			BC8E33J		ACE8147	46E-047	
C95	.033	600	84B15-8			BC8E47J		ACE8147	46E-047	
C96	10000		85C43-3	BPD-01	DD-103	BYA8B1	ED-01	DCS1	5HK-01	③
C97	.001	1600	84A2-36				ED-1000			10%
C98	.001	600	84B16-1				ED-1000			10%
C99	.001	400	84B16-2				ED-1000			10%
C80	3900		84B16-3932	1464-00328		1R5D39			38E-339	10%
C81	.0047	600	84B16-38			BC8D47J		ACE6347	46E-047	
C82	.015	200	84B16-58			BC8S15J			38E-815	
C83	240		83B13-241			1R5T24			38E-824	10%
C84	680		85B31-681	1464-00068		1R6T68			38E-368	10% ③
C85	170-780		88A30-2							
C86	.0047	600		BPD-0047	DD-473	CUB6D47			GEM-6247	47M-047
C87	.047	600	84B6-9	BPD-06	DF-503	CUB9B47			GEM-6147	47M-647
C88	.047	1000	84A2-30	P1068M-047		CUB10B47			GEM-10147	10TM-647
C89	220	1000	85D20-49							N1500 5%
C90	150	5000	85D20-68							N1500 5%
C91	.1	600	84B5-7	P668N-1	DF-104	CUB6P1			GEM-601	67M-P1

1 Some versions use this as part of a component combination (Part #83C8-4).
2 Some versions use a 3300MMF in this application.
3 Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1000Ω	½	70B11-38	F1-8	RTY-563		U268E	Contrast
B	1Meg	½		R3-54	Not Req.	QJ-854	Not Req.	Volume
C	Switch			KB-1	Not Req.		Not Req.	
D	Cover			KB-3	Not Req.		Not Req.	
R2A	100K	½	70B13-33	B-40	A47-100K-B	QU-132	U41	Brightness
B	Shaft	½		Not Req.	KB8-3	Not Req.	Not Req.	
A	100K	½	70C13-33	B-40	A47-100K-B	QU-132	U41	Brightness - Note 1
B	Shaft	½		Not Req.	KB8-3	Not Req.	Not Req.	
A	100K	½	70C13-63	B-40	A47-100K-B	QU-132	U41	Brightness - Note 3
B	Shaft	½		Not Req.	KB8-3	Not Req.	Not Req.	
R3A	300K	½	70B13-69	B-68	A47-300K-B	QU-133	U43	Vert. Hold
B	Shaft	½		Not Req.	KB8-3	Not Req.	Not Req.	
A	300K	½	70C13-68	B-68	A47-300K-B	QU-133	U43	Vert. Hold - Note 1
B	Shaft	½		Not Req.	KB8-3	Not Req.	Not Req.	
A	300K	½	70C13-62	B-68	A47-300K-B	QU-133	U43	Vert. Hold - Note 2
B	Shaft	½		Not Req.	KB8-3	Not Req.	Not Req.	
R4A	3000Ω	½	70C20-7	AB-8	A47-3000-B	QU-113	U8	Vert. Linearity
B	Shaft	½		AK-1	FKH-1/3	RQ	Not Req.	
R5A	2.5Meg	½	70D20-1	B2-83	A47-2.5Meg	QU-139	SU868	Height
					-B			
B	Shaft	½		Not Req.	FKH-1/3	RQ	Not Req.	
A	2.5Meg	½	70C20-1	B2-83	A47-2.5Meg	QU-139	SU868	Height - Note 3
					-B			
B	Shaft	½		Not Req.	FKH-1/3	RQ	Not Req.	

* Concentrikit Equivalent K7-K11. Base Elements & Shafts B17-108, P17-300 (Panel) B13-137, R3-318 (Rear) 76-1 (Switch)

Note 1. Alternate part used in side tuning versions.
Note 2. Alternate part used in front tuning versions.
Note 3 Alternate part used in some versions.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ADMIRAL PART No.	IRC PART No.	NOTES
R8	100Ω		60B8-101	BTS-100	
R7	10K		60B8-103	BTS-10K	
R8	1000Ω		60B8-102	BTS-1000	
R9	22K		60B8-223	BTS-22K	
R10	47K		60B8-473	BTS-47K	
R11	820K		60B8-824	BTS-820K	
R12	470K		60B8-474	BTS-470K	
R13	1500Ω	1	60B14-152	BTA-1500	
R14	8200Ω		60B8-822	BTS-8200	
R15	100K		60B8-104	BTS-100K	
R16	100K		60B8-104	BTS-100K	
R17	100K		60B8-104	BTS-100K	
R18	10K		60B8-103	BTS-10K	
R19	10K		60B8-103	BTS-10K	
R20	6800Ω		60B8-682	BTS-6800	
R21	3300Ω	1	60B14-332	BTA-3300	
R22	100K		60B8-104	BTS-100K	
R23	1500Ω	1	60B14-152	BTA-1500	
R24	470Ω		60B8-471	BTS-470	
R25	1Meg		60B8-105		
R26	1.5Meg		60B8-156		
R27	330K		60B8-334		
R28	470K		60B8-474	BTS-470K	
R29	4.7Meg		60B8-479		
R30	1000Ω		60B8-102	BTS-1000	
R31	3K 5%		60B7-343	BTS-3K 5%	
R32	6800Ω 5%		60B7-682		
R33	1000Ω		60B8-102	BTS-1000	
R34	82Ω 5%		60B7-830	BTS-83 5%	
R35	1000Ω		60B8-102		
R36	39K 5%		60B7-393		
R37	1000Ω		60B8-102	BTS-1000	
R38	4700Ω	7	61B30-1	FWT-4000	
R39	82Ω		60B8-820	BTS-83	
R40	33K		60B8-333		

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ADMIRAL PART No.	IRC PART No.	NOTES
R41	1000Ω		60B8-102	BTS-1000	
R42	120Ω		60B8-121	BTS-120	
R43	4700Ω		60B8-472	BTS-4700	
R44	100Ω		60B8-101	BTS-100	
R45	4700Ω	2	60B20-472	BTS-4700	
R46	15K		60B8-153	BTS-15K	Note 1
R47	270K		60B8-274	BTS-270K	Note 1
R48	30K 9%		60B7-303	BTS-30K 9%	
R49	1Meg		60B8-105	BTS-1Meg	
R50	180Ω		60B8-181	BTS-180	
R51	470Ω		60B8-471	BTS-470	
R52	56K		60B8-563	BTS-56K	
R53	180K		60B8-184	BTS-180K	
R54	470K		60B8-474	BTS-470K	
R55	1000Ω		60B8-102	BTS-1000	
R56	120Ω		60B8-121	BTS-120	
R57	390Ω		60B8-391	BTS-390	
R58	10K		60B8-103	BTS-10K	
R59	10K		60B8-103	BTS-10K	
R60	47K		60B8-473	BTS-47K	
R61	4.7Meg		60B8-475	BTS-4.7Meg	
R62	3.3Meg		60B8-335	BTS-3.3Meg	
R63	470K		60B8-474	BTS-470K	
R64	470Ω		60B8-471	BTS-470	
R65	27K	1	60B14-273	BTA-27K	
R66	100Ω		60B8-101	BTS-100	
R67	1Meg 9%		60B7-109	BTS-1Meg 9%	
R68	820K 9%		60B7-824	BTS-820K 9%	
R69	220Ω	1	60B14-221	BTA-220	
R70	2.2Meg		60B8-225	BTS-2.2Meg	
R71	47K		60B8-473	BTS-47K	
R72	220K		60B8-224	BTS-220K	
R73	330Ω		60B8-331	BTS-330	
R74	4.7Meg		60B8-475	BTS-4.7Meg	
R75	2.2Meg		60B8-225	BTS-2.2Meg	

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ADMIRAL PART No.	IRC PART No.	NOTES
R76	6800Ω		60B8-682	BTS-6800	
R77	33000		60B8-332	BTS-3300	
R78	220K		60B8-224	BTS-220K	
R79	100K		60B8-104	BTS-100K	
R80	1.5Meg		60B8-155	BTS-1.5Meg	
R81	18K	3	60B20-183	BTS-18K	Note 2
R82	18K	3	60B20-183	BTS-18K	Note 3
R83	15K		60B8-153	BTS-15K	
R84	150K		60B8-154	BTS-150K	
R85	1.5Meg		60B8-155	BTS-1.5Meg	
R86	220K		60B8-224	BTS-220K	
R87	820Ω		60B8-821	BTS-820	
R88	27000		60B8-272	BTS-2700	
R89	560Ω		60B4-561		
R90	560Ω		60B8-561		
R91	100K 5%		60B7-104		

Note 1. Some versions may use these as part of a component combination (Part #83C9-7)in this application.
Note 2. Some versions may use a single 82000Ω, 3W in this application.
Note 3 Some versions may use a 120K in this application.
Note 4. Some versions may use a 3900Ω in this application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	SEC. 3	REPLACEMENT DATA ADMIRAL PART No.	Hallodrson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Tried PART No.
T1	117VAC	560VCT	6V	6.3V	80C38-8	P9739 ①	P-3065 ③	P-6167 ②	26R90 ③	R-65BC
	① 1.5A	② 240A	③ 3A	④ 10.4A						

① Parallel and phase 6.3V filament windings. Tape 13.6VCT filament winding. Drill new mounting hole.
② Parallel and phase 6.3V filament winding.
③ Parallel and phase 6.3V filament winding. Drill new mounting holes.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA ADMIRAL PART No.	Hallodrson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Tried PART No.
T2	Vert Output	79B43-4	21E07 ①	A-2819		V313	A-8141	26S54	A-110X
T3A	Yoke-Horiz. (8.5MH)	94B67-13	DF-407	MDF-93	32S01	T80719/43	DY-38A	Y-41 &	Y-41 &
B	(RC)-Vert. (34MH)	②	② ③	②	③ ⑤	③ ⑤	② ③	② ⑤	VW3 ⑤
T4	Horiz. Output	79B65-1	FB430 *	EVO-54 *		X239 *	A-8292 *	FLY-77 *	D-49 *
M5	Alt. Horiz. Output	79D65-1	FB430 *	EVO-54 *		X239 *	A-8292 *	FLY-77 *	D-49 *
	Rear Cover & Centering Device	94B181-51							
	Yoke Clamp	18A12-3							

① Drill new mounting hole(s).
② Cut and tape yellow lead.
③ Includes resistors R86 and R90.
④ Use original horizontal damping network.
⑤ Loosen and rotate core clamp 180°, then connect same as original. Use original rear cover and centering device.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

ORIGINAL TERMINAL CONNECTIONS	Hallodrson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Tried Replacement Connections
5	5	5	5	5	5	4	5
6	2	4	4	1	6	3	6
8	1	1	1	8	1	1	2
Special Note →	③	③	③	③	③	③	③

③ Filament requires two turns.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC.	REPLACEMENT DATA ADMIRAL PART No.	Hallodrson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Tried PART No.	NOTES
T5	3700Ω	3-4Ω	79B66-3 ①	21G01	A-2928	A-3876	22S46	S-1X	① Used with speakers part
			79B66-1 ②	21G01 ③	A-2928 ③	A-3876 ①	22S46 ②	S-1X ②	#78D105-1 and #78D113-2
			79B66-3 ④						② Used with speakers part #78D11-4, 78D11-5, 78C108-3
									③ Thread ears down
									④ Used with speaker part #78D11-1

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA ADMIRAL PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	78B105-1 ① ②	4A07	① Includes T5 and plug (Part #8BA3-7)
	5"	PM	3-4Ω	78C11-4 ① ③	6A1	② Used in Models TS23A1, 2, 3, 6, 7 and Ch. 18A24D
	6"	PM		78D19-2 ① ④		③ Used in Models TS23A1, 2, 2D2, 3, 5LN
	6"	PM		78D18-1 ① ⑤		④ Used in Models CS23A26, 27
	6"	PM		78C18-2 ① ⑥		⑤ Used in Models CS23A8, 7, 16, 17, 19
	6"	PM		78C13-2 ⑦		⑥ Includes pin jacks. Used with speaker part #78D18-1
	6"	PM		78C11-5 ① ⑧		⑦ Includes T5. Used in Models CS23A8, 7
	6"	PM		78C19-1 ⑨		⑧ Used in Models CS23A1, 1X, 13 and Ch. 19A24DT
	6"x9"	PM		78C18-3 ⑨		⑨ Includes T5. Used in Models CS23A26, 27
						⑩ Used in Models CS23B16, 17 and Ch. 19A24DF

COILS (RF-IF)

ITEM No.	USE	ADMIRAL PART No.	NOTES
L1	Fil. Choke	94C75-18	
L3	Cath. Choke	94C75-17	
L3	UHF Coupling Coil	94C75-24	
L4	UHF Coupling Coil	94C75-25	
L5	VHF Ant. Trans. Neutralizing	94C64-54	Complete Assy.
L6	VHF Ant. Coils	94C64-104	
B		94C75-53	Channel 2
C		94C75-54	Channel 3
D		94C75-55	Channel 5
E		94C75-56	Channel 6
F		94C75-57	Channel 7
G		94C75-58	Channel 8
H		94C75-59	Channel 9
I		94C75-60	Channel 10
J		94C75-61	Channel 11
K		94C75-62	Channel 12
L		94C75-63	Channel 13
L7A	UHF IF Coils	94C75-51	

ITEM No.	USE	ADMIRAL PART No.	NOTES
L8A	VHF RF, Mixer Grid, Osc. Coils	94C75-72	Channel 2
B	"	94C75-73	Channel 3
C	"	94C75-74	Channel 4
D	"	94C75-75	Channel 5
E	"	94C75-76	Channel 6
F	"	94C75-77	Channel 7
G	"	94C75-78	Channel 8
H	"	94C75-79	Channel 9
I	"	94C75-80	Channel 10
J	"	94C75-81	Channel 11
K	"	94C75-82	Channel 12
L	"	94C75-83	Channel 13
M	UHF IF Coils	94C75-84	
L8	VHF Mixer Plate Coil	94C64-103	

ITEM No.	USE	REPLACEMENT DATA ADMIRAL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L10	1st. Video IF	T2B13-1				Includes Cap.
L11	Fil. Choke	T3A3-8	19-3001	TV-189	6175	.6 Microhenry
L12	2nd. Video IF	T2B11-36	17-6833	TV-189	6210	
L13	4i. 35MC Trap	T2B11-37			6230 ▪	
L14	Fil. Choke	T3A3-8	19-3001	TV-189	6175	.6 Microhenry
L15	3rd. Video IF	T2B11-38	17-6833	TV-190	6210	
L16	4th. Video IF	T2B13-3	17-5004 ▲	TV-188 ▲	6234 ▲	
L17	RF Choke	T3A34-1	19-1004	RC-894	4812	6.4 Microhenries
L18	Series Peaking Coil	T3B8-15	19-3180 ◦	TV-184 ◦	6180 ◦	184 Microhenries, wound on 4700Ω resistor
L19	Shunt Peaking Coil	T3B8-7	19-3800		6176	800 Microhenries
L20	4.5MC Trap	T3C13-1				
L21	Series Peaking Coil	T3B8-14	19-3280 ▪	TV-188 ▪	6181 ▪	384 Microhenries, wound on 18K resistor
L22	Shunt Peaking Coil	T3A11-1			6186 ▪	780 Microhenries, wound on 10K resistor
L23	Sound IF	T2B98-14	30-1006	TV-181	1470	
L24	Ratio Det.	T2B86-2	17-5033 †	TV-110 †	1468 †	

* Disregard tap. ▲ Use adaptor plate. ◦ Parallel with 4700Ω resistor. ▪ Parallel with 18K resistor. ▪ Parallel with 10K resistor. † Remove C57

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	SEC.	REPLACEMENT DATA ADMIRAL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	NOTES
L25	45Ω		94C37-4		TV-184					22 - 46 Millihenries

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE @ CURRENT 1000 ^C/sl	REPLACEMENT DATA ADMIRAL PART No.	Hallodrson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Tried PART No.
L26	240A	85Ω	1.3 HY.	74B16-13	C9037 ①	C-2906 ①	C-8136 ①	28C44 ①	C-34X

① Drill new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ADMIRAL PART No.	REPLACEMENT DATA
K1	Vert. Integrator	3000MMF, 5000MMF, 5000MMF, 22K, 82000, 82000	63C9-7	Aerovox PA-110 Centralab PC-107 Cornell-Dubilier UBTMG Erie 1406-01 Sprague 103C2TA

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA ADMIRAL PART No. FUSE	ADMIRAL PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No FUSE	BUSS PART No HOLDER
M1	3AG	1/2A 125V S/B	84A1-33	84A5-4	313.500 (2AG 1/2A 125V S/B)	357001	MDL 1/2	4405

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA ADMIRAL PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M2	1N82A	1N82A	1N82A	1N82A	UHF Detector

ADMIRAL MODELS CS23A11, 12, 13, 24, 27, CS23B16C, 17C, CS23A6, 7, 16, 17, 19 CS23B6A, 7, TS23A1, 2, 3, 3LW (Ch. 19A24D, DF, DT ES, 19S24D, DF, DT ES, 25, PS2, 3, 3LW)

FOLDER 2

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M3	Dial Light	81A1-12	Type #51
M4	Tuner	94E75-20	UHF/VHF - All chassis except 19AZ4D, DF, DT, ES
	Tuner	94E144-4	VHF - Ch. 19AZ24D, DF, DT, ES
	Tuner	94D112-3	UHF - Ch. 19AZ4D, DF, DT, ES
M5	Switch	76A31-3	Local-Distant (Front Tuning)
	Switch	76A31-1	Local-Distant (Side Tuning)
M6	Centering Device	94B121-51	Part of yoke rear cover
M7	Ion Trap	94A15-4	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	21C83-16	Clear - Model TS23A1
Safety Glass	21C83-15	Tinted - Models TS23A2, 3, 6, 7, CS23A11, 12, 13
Safety Glass	21C87-2	Tinted - Models TS323A1, 2, 3, 2BZ, 3LN
Safety Glass	21C89-2	Tinted - Models CS323A6, 7, 16, 17, 19, 26, 27
Safety Glass	21C92-2	Tinted - Models CS325A6, 7
Mask	23E270-1	Green - Models T23A1, 2, 6, CS23A11, 12
Mask	23E248-8	Green - Models TS323A3, 3LN
Mask	23E253-7	Green - Models CS323A6, 16, 19, 26
Mask	23E267-2	Green - Model CS325A6
Mask	23E248-7	Black - Models TS323A1, 2, 2BZ
Mask	23E270-2	Black - Models TS23A3, 7, CS23A13
Mask	23E253-8	Black - Models CS323A7, 17, 27
Mask	23E267-6	Black - Model CS325A7
Escutcheon	23E250-101	Golden Picture Frame - Models CS323A6, 7, CS23A2, 6, 27)
Escutcheon	23E252-102	Golden Picture Frame - Models CS323A16, 17, 19
Escutcheon	23E266-101	Golden Picture Frame - Models CS325A6, 7
Bezel	23E241-2	Bright Gold - Models TS323A1, 2, 3, 2BZ, 3LN
Knob	33D199-18	VHF Channel Selector -Green-Models TS23A1, 2, TS323A1, CS23A11, 12
Knob	33D199-24	VHF Channel Selector-Green-Models TS323A2, 2BZ, TS23A6, CS323A6, 16, 19, CS325A6, CS23A26
Knob	33D199-3	VHF Channel Selector -Models TS23A3, CS23A13
Knob	33D199-12	VHF Channel Selector -Beige-Models TS323A3, 3LN, TS23A7, CS323A7, 17, CS325A7, CS23A27
Knob	A5332	UHF Channel Selector (With Spinner) Models TS23A1, 2, 3, 6, 7, TS323A1, 2, 3, 2BZ, 3LN, CS23A11, 12, 13
Knob	A5603	UHF Channel Selector (With Spinner) Models CS323A6, 7, 16, 17, 19, CS325A6, 7, CS23A26, 27
Knob	33D199-9	UHF Channel Indicator
Knob	33D165-139	Contrast
Knob	33D199-17	On-off-volume (Green) Models TS23A1, 2, TS323A1, CS23A11, 12
Knob	33D199-23	On-off-volume (Green) Models TS23A6, TS323A2, 2BZ, CS323A6, 16, 19, CS325A6, CS23A27
Knob	33D199-11	On-off-volume (Beige) Models TS323A3, 3LN, TS23A7, CS323A7, 17, CS325A7, CS23A27
Knob	33D199-2	On-off-volume - Models TS23A3, CS23A13
Knob	33A174-4	Brightness & Vertical - Green- Models TS23A1, 2, 6, TS323A1, 2, 2BZ, CS323A6, CS323A16, 17, 19, CS325A6, CS23A11, 12, 26
Knob	33A174-1	Brightness & Vertical -Beige-Models TS23A3, 7, TS323A3, 3LN, CS323A7, CS323A17, CS325A7, CS23A13, 27
Knob	33A174-8	Local-Distant (Green) Models TS23A1, 2, 6, TS323A1, 2, 2BZ, CS323A6, CS323A16, 19, CS325A6, CS23A11, 12, 26
Knob	33A174-5	Local-Distant (Beige) Models TS23A3, 7, TS323A3, 3LN, CS323A7, 16, CS325A7, CS23A13, 27
Cabinet	34D110-1	Model TS23A1
Cabinet	34D110-2	Model TS23A2
Cabinet	34D110-3	Model TS23A3
Cabinet	35E372-2	Model TS23A6
Cabinet	35E372	Model TS23A7
Cabinet	34D102-1	Model TS323A1
Cabinet	34D102-2	Models TS323A2, 2BZ (Mahogany)
Cabinet	34D102-3	Models TS323A3, 3LN (Oak)
Cabinet	34D102-4	Models TS323A2, 2BZ (Bronze)
Cabinet	34D102-5	Models TS323A3, 3LN (Linen)
Cabinet	35E369-2	Model CS323A16
Cabinet	35E369-3	Model CS323A17
Cabinet	35E369-5	Model CS323A19
Cabinet	35E379-2	Model CS325A6
Cabinet	35E379-3	Model CS325A7
Cabinet	35E375-1	Model CS23A11
Cabinet	35E375-2	Model CS23A12
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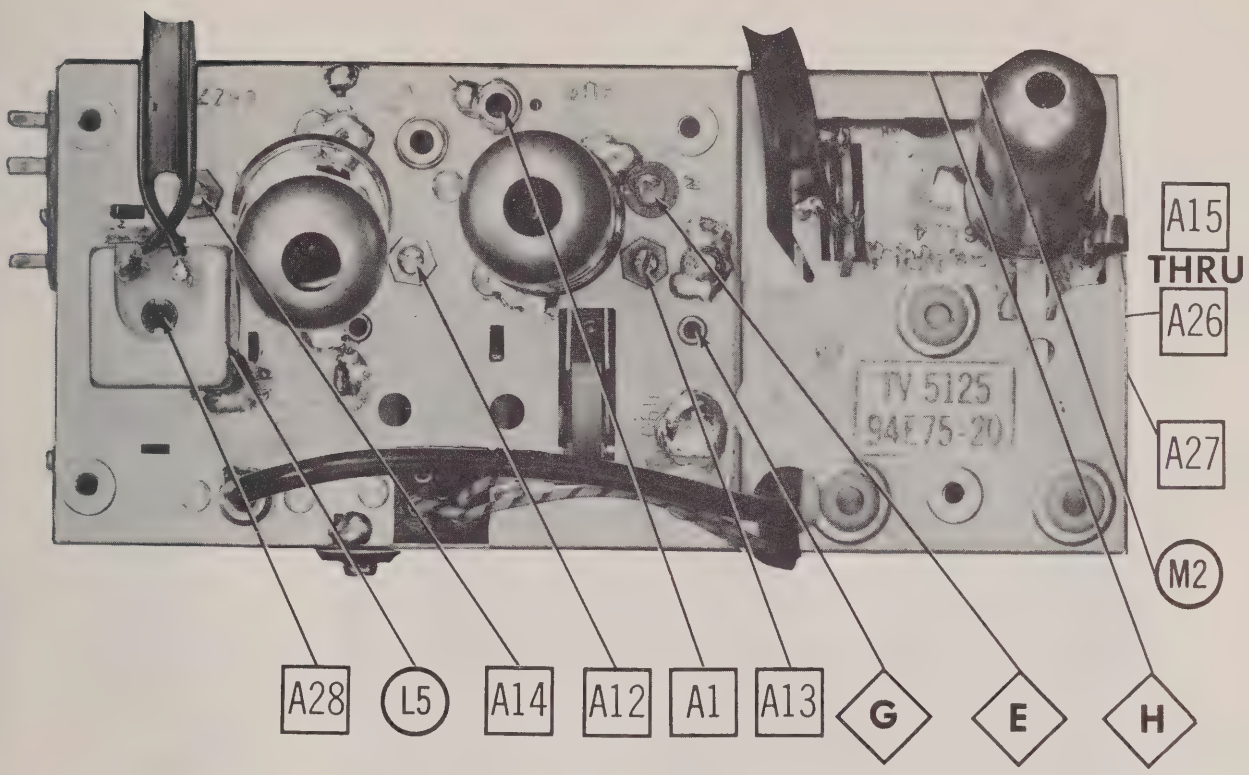
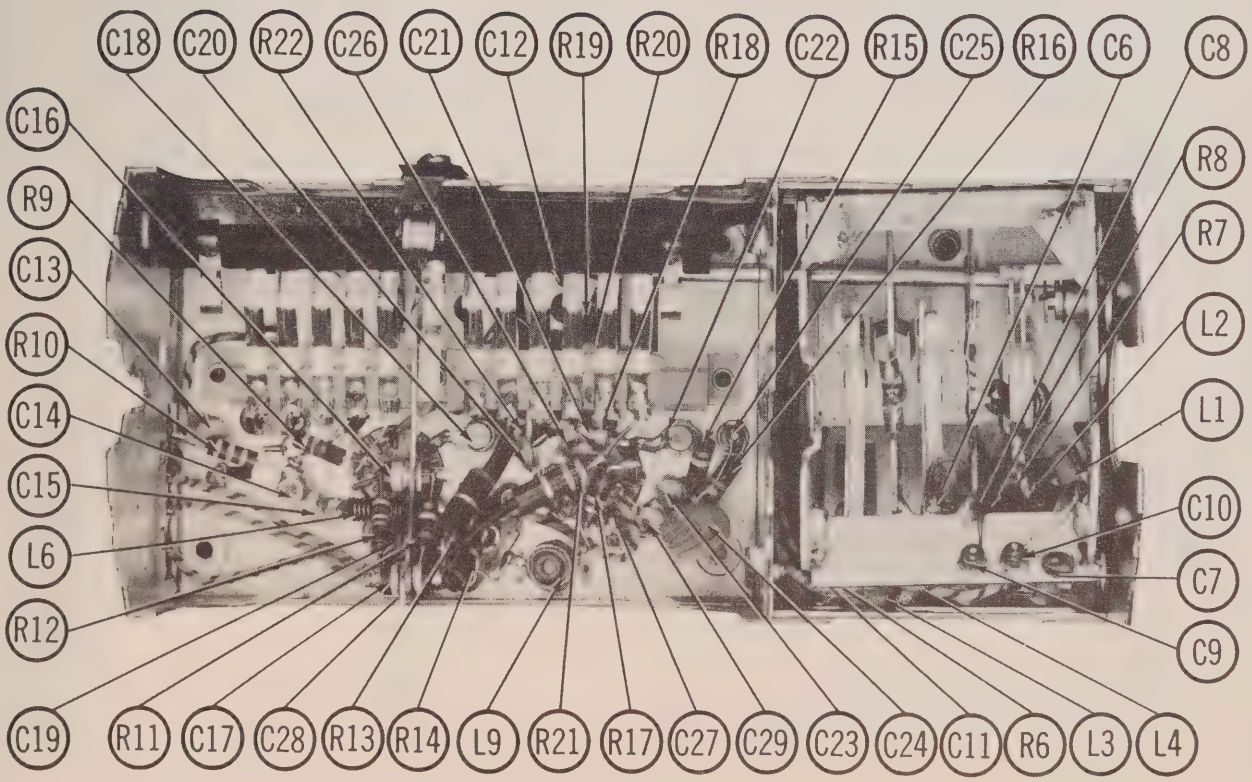
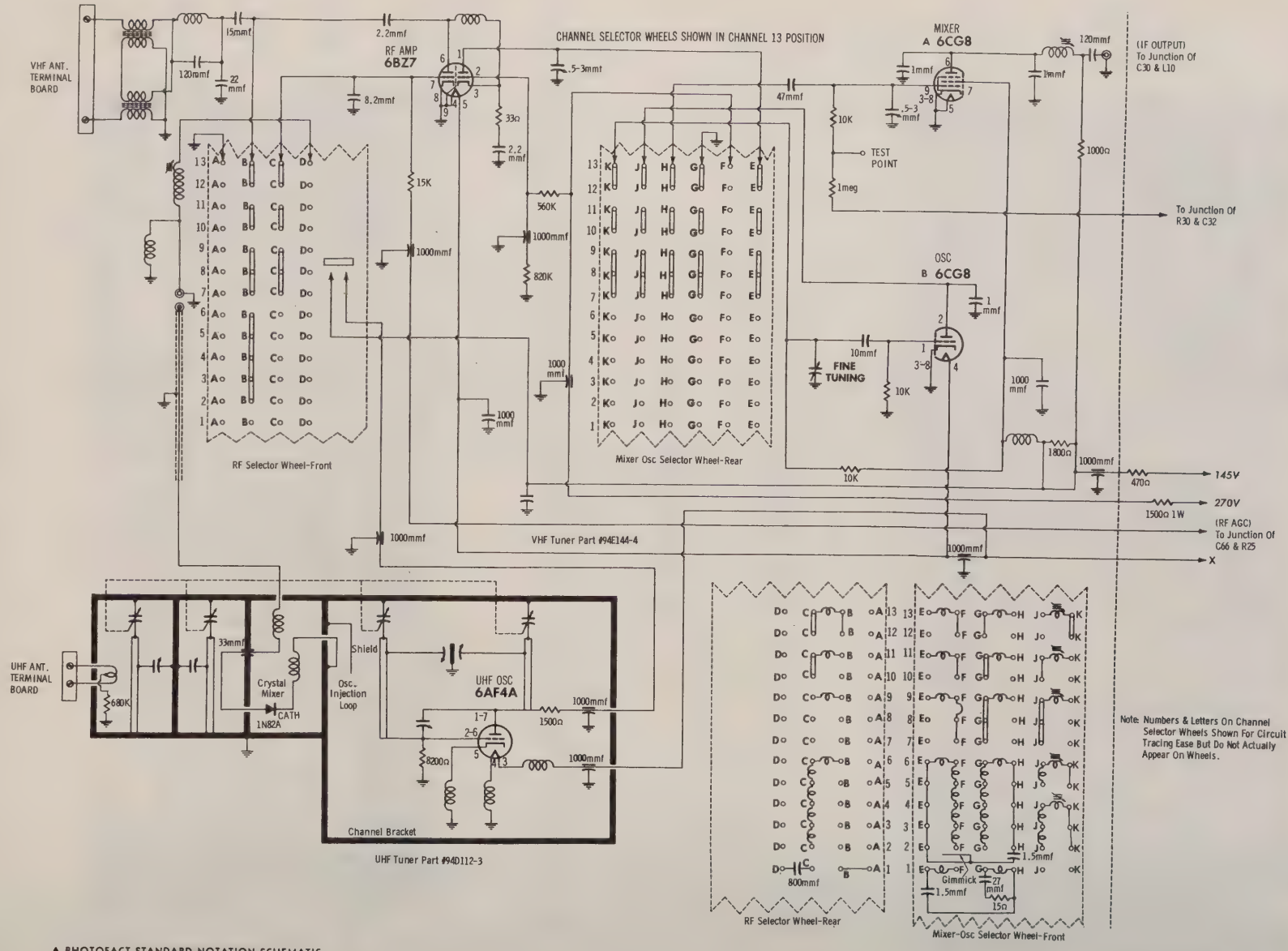
Cabinet	35E370-2	Model CS23A26
Cabinet	35E370-3	Model CS23A27



RF TUNER-TOP VIEW

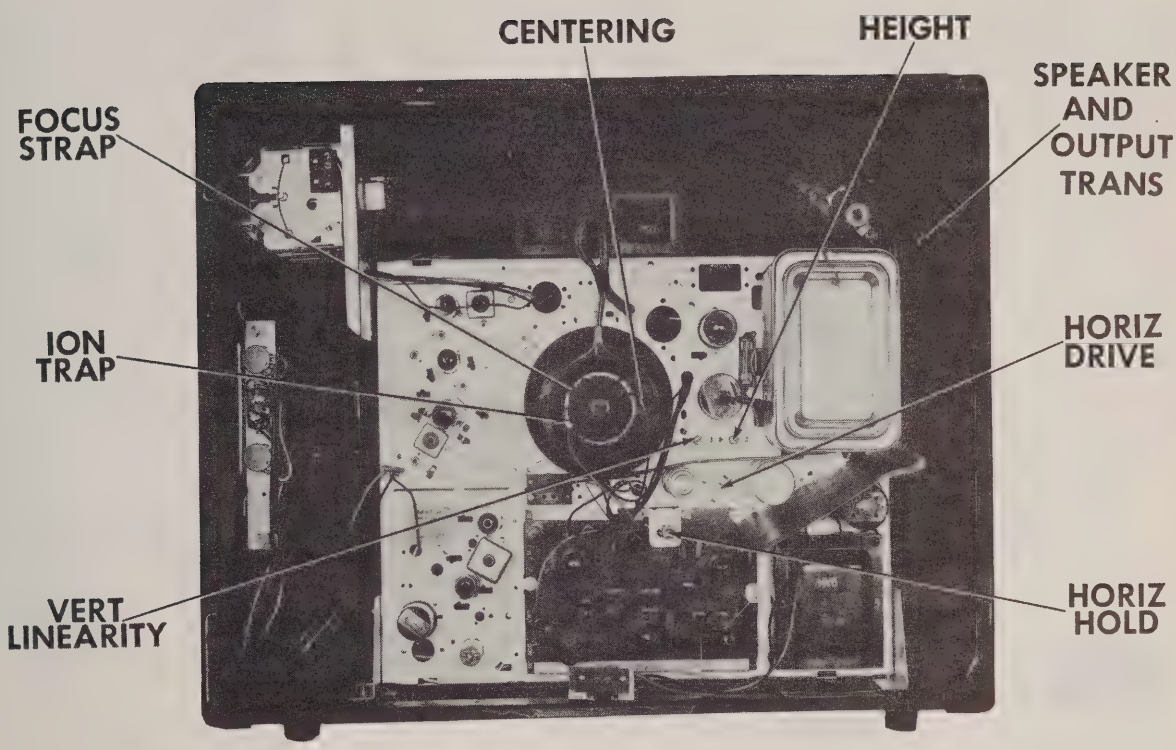


RF TUNER-BOTTOM VIEW



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

ALTERNATE TUNER SCHEMATIC



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the brightness and contrast controls for a normal picture.

Turn the horizontal hold clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.

Turn the horizontal hold slowly counter clockwise until the picture just falls into sync.

Turn to an unused channel. If vertical lines appear near the center of the screen, slowly adjust the horizontal drive trimmer (B1) until white lines disappear.

If in step 5 the horizontal drive was adjusted, tune in a TV station and repeat steps 3 and 4. Check horizontal sync by switching off channel and back again.

PHOTOFACT* Folder

*TRADE MARK

RETMA MEMBER

AIRLINE
MODELS GTM-4032A, GTM-4132A

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

AIRLINE
MODELS GTM-4032A, GTM-4132A

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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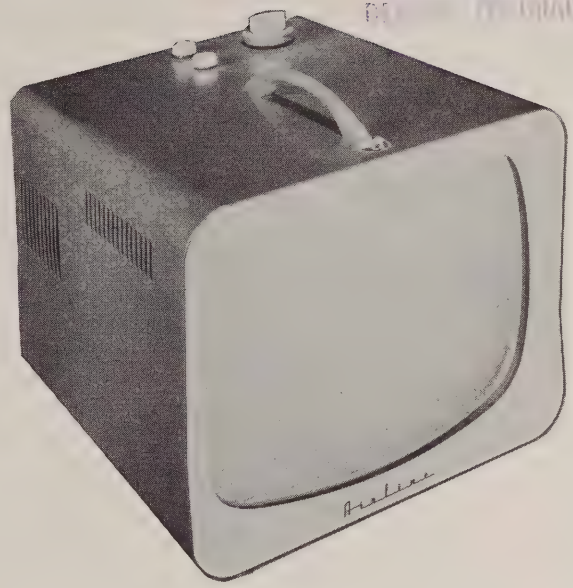
FOLDER 3

AIRLINE
MODELS GTM-4032A, GTM-4132A



DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 4 push-on type control knobs from the top.
2. Remove 7 metal screws and the rear cover.
3. Remove the picture tube socket, ion trap, yoke clamp, HV lead and 2 speaker leads.
4. Remove 2 speaker nuts and the speaker.
5. Remove 1 metal screw holding the upper chassis brace .
6. Remove 4 chassis bolts.
7. Remove the chassis and yoke.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

AIRLINE
MODELS GTM-4032A, GTM-4132A

TRADE NAME	Airline Models GTM-4032A, GTM-4132A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Illinois
TYPE SET	Television Receiver
TUBES	Fifteen
POWER SUPPLY	105-125 Volts AC, 60 Cycle RATING 115 Watts, 1 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

For touch-up adjustment of the VHF oscillator it is necessary to remove the chassis from the cabinet. (See disassembly instructions).

PICTURE TUBE SAFETY GLASS CLEANING

Remove 4 metal screws holding the front frame. Pull out at bottom and down to remove safety glass.

FOCUS

Adjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B2) until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate audio detector buzz, adjust the quieting control for MINIMUM buzz and maximum sound. (For location, see tube placement chart).

FUSE DEVICE

A 4.7Ω fusible resistor (R79) is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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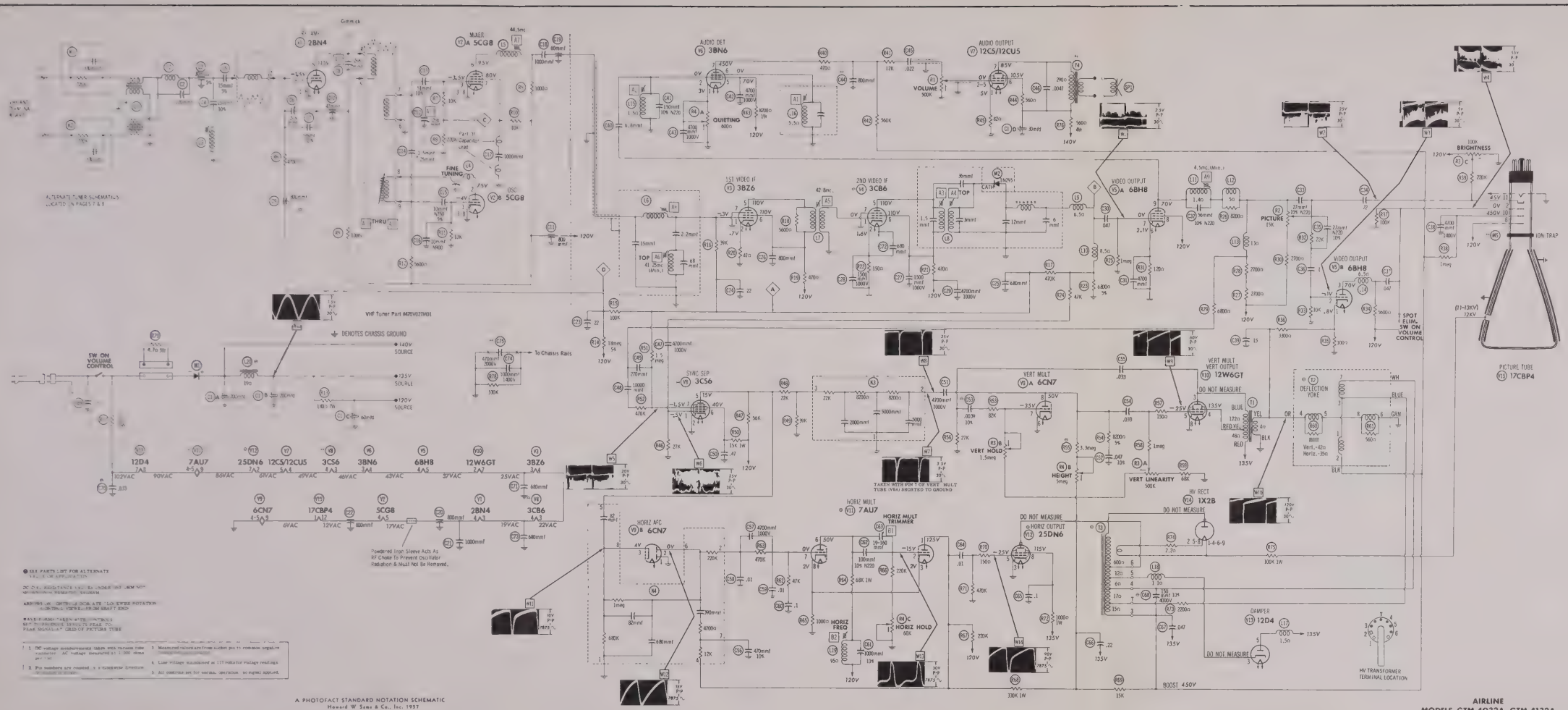
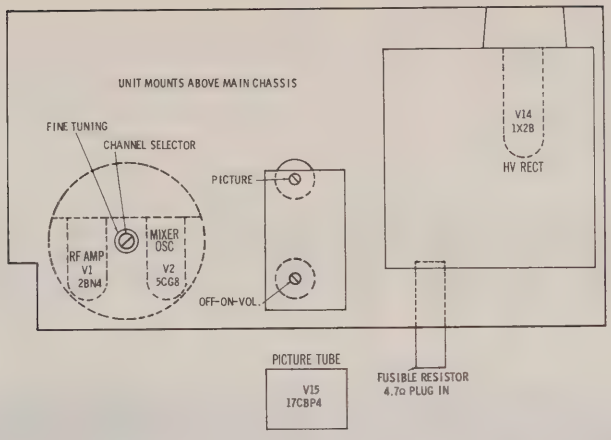

AIRLINE
MODELS GTM-4032A, GTM-4132A
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957
Powdered Iron Sleeve Acts As RF Choke To Prevent Oscillator Radiation & Must Not Be Removed.
DENOTES CHASSIS GROUND
SW ON VOLUME CONTROL
SPOT ELIM. SW ON VOLUME CONTROL
ION TRAP
PICTURE TUBE
17CBP4
HV TRANSFORMER TERMINAL LOCATION
DO NOT MEASURE
BOOST 450V
VHF Tuner Part #470V027M01
To Chassis Rails
TAKEN WITH PIN 7 OF VERT. MULT TUBE (V9A) SHORTED TO GROUND
12D4 7AU7 25DN6 12CS/12CU5 3CS6 3BN6 6BH8 12W6GT 3BZ6
6CN7 17CBP4 5CG8 2BN4 3CB6

TUBE PLACEMENT CHART



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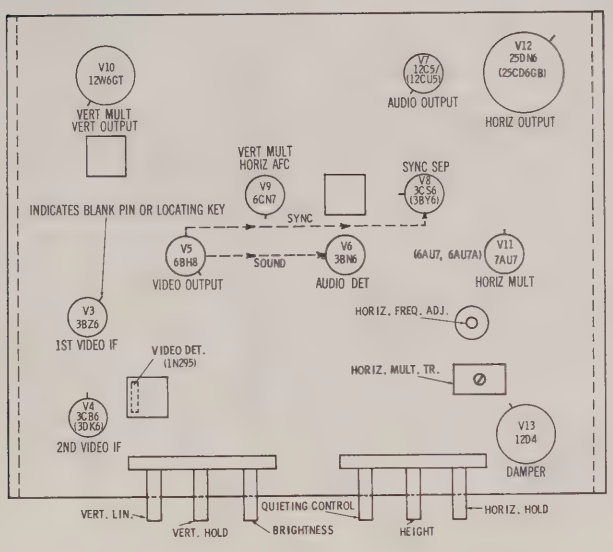
DENVER, COLORADO



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

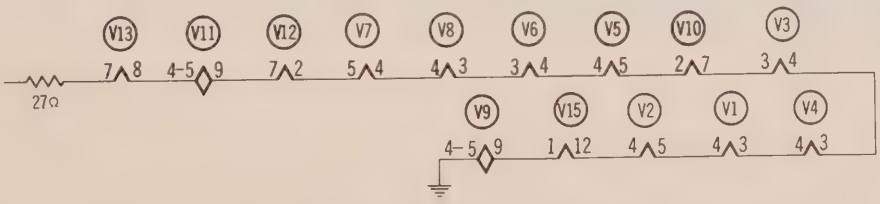
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R79), Rectifier (M1)**

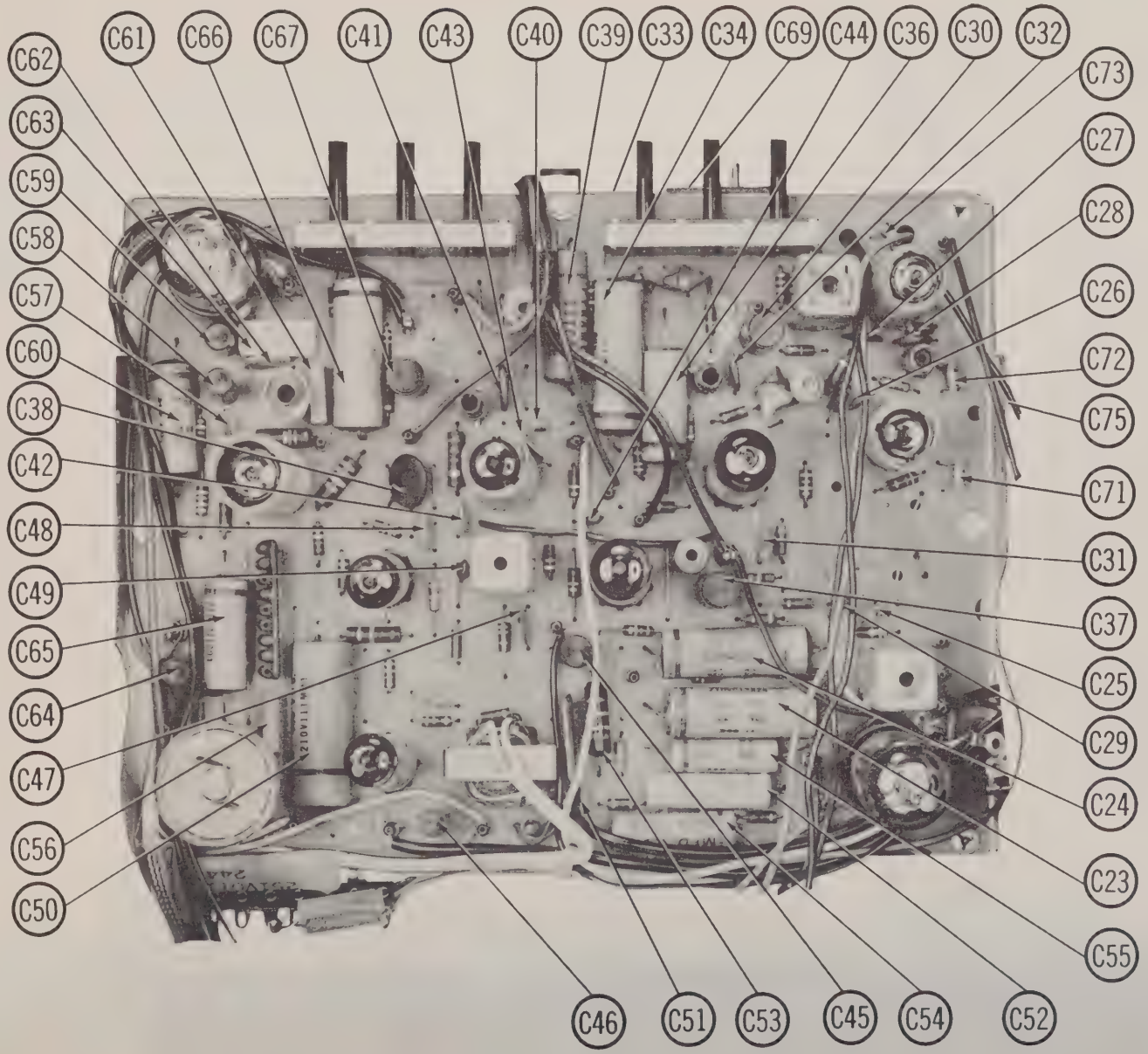
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, Diode (M2), V5**
No pic, no sound, has snow - **V1, V2**
No pic, has sound, has raster - **V5, V15**
Has pic, no sound - **V6, V7**

SYNC FAILURE
No vert. sync - **V8**
No horiz. sync - **V8, V9**
No vert. or horiz. sync - **V8**

SWEEP FAILURE
No raster, has sound - **V9, V11, V12, V13, V14, V15**
No vertical deflection - **V9, V10**
Poor vert. linearity or foldover - **V9, V10**
Poor horiz. linearity or foldover - **V11, V12, V13**
Narrow picture - **V11, V12, V13, M1**
Vert. off freq. - **V9, V10**
Horiz. off freq. - **V11**

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below).





CAPACITOR IDENTIFICATION

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AIRLINE MODELS
GTM-4032A, GTM-4132A
RESISTOR IDENTIFICATION

FOLDER 3

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.

SOUND IF ALIGNMENT

Turn the set on and tune in a TV station. Adjust the fine tuning for best picture.
Set the quieting control (R4A) to the center of its range.
With a strong station signal applied to the receiver, adjust A1 for maximum volume.
Connect an attenuator between the antenna and receiver terminals and reduce the signal strength with the attenuator 6 db . Adjust A2 for maximum volume. Reduce the signal still further and recheck adjustments.
Reduce the signal strength to the point that noise is heard in the sound and adjust the quieting control for MINIMUM noise.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓐ. Positive to chassis.
Keep the output of the generator adjusted to provide a constant 1 volt on the VTVM.
Connect a 470MMF capacitor across the terminals of the VTVM and the scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001MFD	High side to pin 1 (grid) of 3CB6 (V4). Low side to chassis.	45.0MC	44.5MC	Any non-interfering channel	Vert. Amp. thru 47K to point Ⓑ. Low side to chassis.	A3, A4	Adjust A3 to peak at 44.5MC and A4 to rock the curve about 44.5MC.
2.	"	High side to pin 1 (grid) of 3BZ6 (V3). Low side to chassis.	Not used	42.8MC	"	USE VTVM. DC probe thru 47K to point Ⓑ. Common to chassis.	A5	Adjust for maximum deflection.
3.	"	"	45.0MC	44.5MC	"	Same as Step 1.		Retouch A3 and A5 for response curve similar to Fig. 1, if necessary.
4.	"	High side to point Ⓒ. Low side to chassis.	Not used	41.25MC	"	Same as Step 2.	A6	Adjust for MINIMUM deflection.
5.	Fig. 2	Connect across antenna terminals thru matching network (Fig. 2).	Not used	215.75MC	13	"	Fine Tuning	"
6.	"	"	213.0MC	213.0MC	"	Same as Step 1.	A7	Adjust for maximum amplitude at response curve.
7.	"	"	"	"	"	"	A8	Adjust A7 to the position which will rock the overall response curve about the marker when A8 is turned back and forth. Set A8 for symmetrical response curve.
8.	.01MFD	High side to point Ⓑ. Low side to chassis.	Not used	4.5MC (400∿ 30% AM Mod)	Any non-interfering channel	USE VTVM. RF probe to pin 11 (cathode) of the picture tube.	A9	Adjust for MINIMUM deflection.

VHF OSCILLATOR ALIGNMENT

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually, 50 ohms.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point Ⓑ. Low side to chassis.	A10	Adjust to place sound marker in trap notch as in Fig. 3. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A11	
			201MC	199.25MC 203.75MC	11		A12	
			195MC	193.25MC 197.75MC	10		A13	
			189MC	187.25MC 191.75MC	9		A14	
			183MC	181.25MC 185.75MC	8		A15	
			177MC	175.25MC 179.75MC	7		A16	
			85MC	83.25MC 87.75MC	6		A17	
			79MC	77.25MC 81.75MC	5		A18	
			69MC	67.25MC 71.75MC	4		A19	
			63MC	61.25MC 65.75MC	3		A20	
			57MC	55.25MC 59.75MC	2		A21	

ALIGNMENT INSTRUCTIONS (cont)

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 2.5 volt bias supply to point Ⓓ. Positive to chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC	205.25MC 209.75MC	12	Vert. Amp. thru 10K to point Ⓒ. Low side to chassis.	A22, A23	Adjust for response curve similar to Fig. 4 with markers above 90%.
11.	"	"	213MC	211.25MC 215.75MC	13	"		Check for response similar to Fig. 4. If markers fall below 70% on any channel, make compromise adjustments of A22 and A23 with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.
			201MC	199.25MC 203.75MC	11			
			195MC	193.25MC 197.75MC	10			
			189MC	187.25MC 191.75MC	9			
			183MC	181.25MC 185.75MC	8			
			177MC	175.25MC 179.75MC	7			
			85MC	83.25MC 87.75MC	6			
			79MC	77.25MC 81.75MC	5			
			69MC	67.25MC 71.75MC	4			
			63MC	61.25MC 65.75MC	3			
			57MC	55.25MC 59.75MC	2			

UHF TUNER ALIGNMENT

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Fig. 2	Across UHF terminals thru matching network (Fig. 2).	605MC	603.25MC 607.75MC	36	Vert. Amp. thru 47K to point Ⓑ. Low side to chassis.	A24	Adjust output of sweep generator to provide 2 volts peak to peak on scope. Adjust A24 for response similar to Fig. 5. Check alignment at both ends of band. The response must fall within indicated limits.

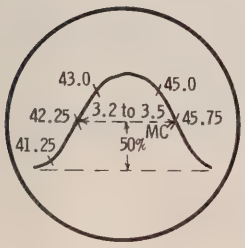
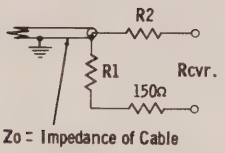


FIG. 1



Zo	R1	R2
50Ω	56Ω	120Ω
75Ω	82Ω	110Ω

FIG. 2

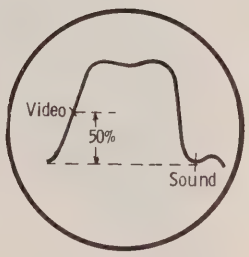


FIG. 3

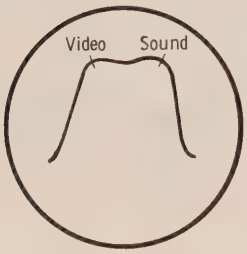


FIG. 4

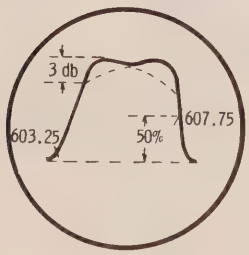
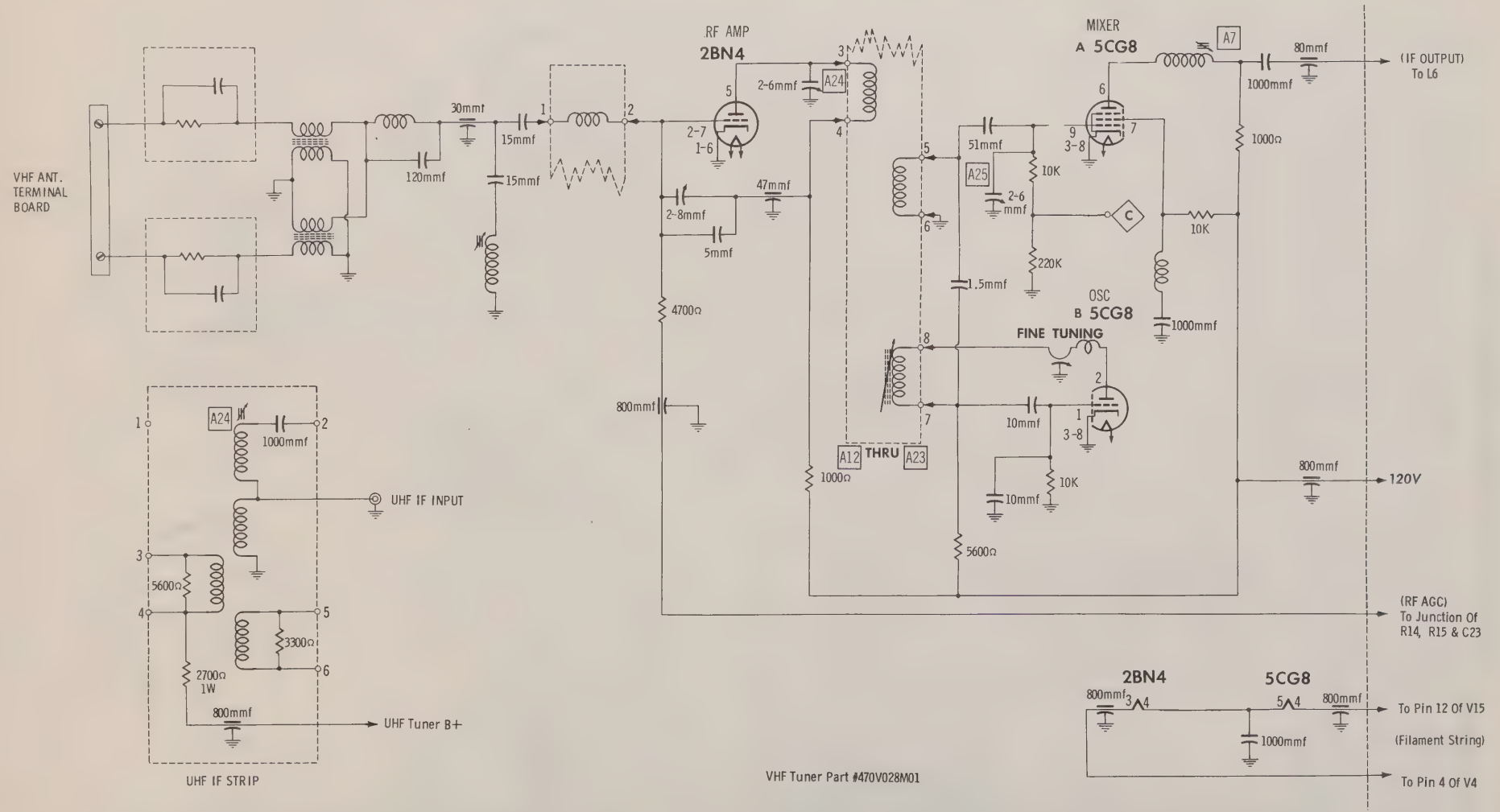


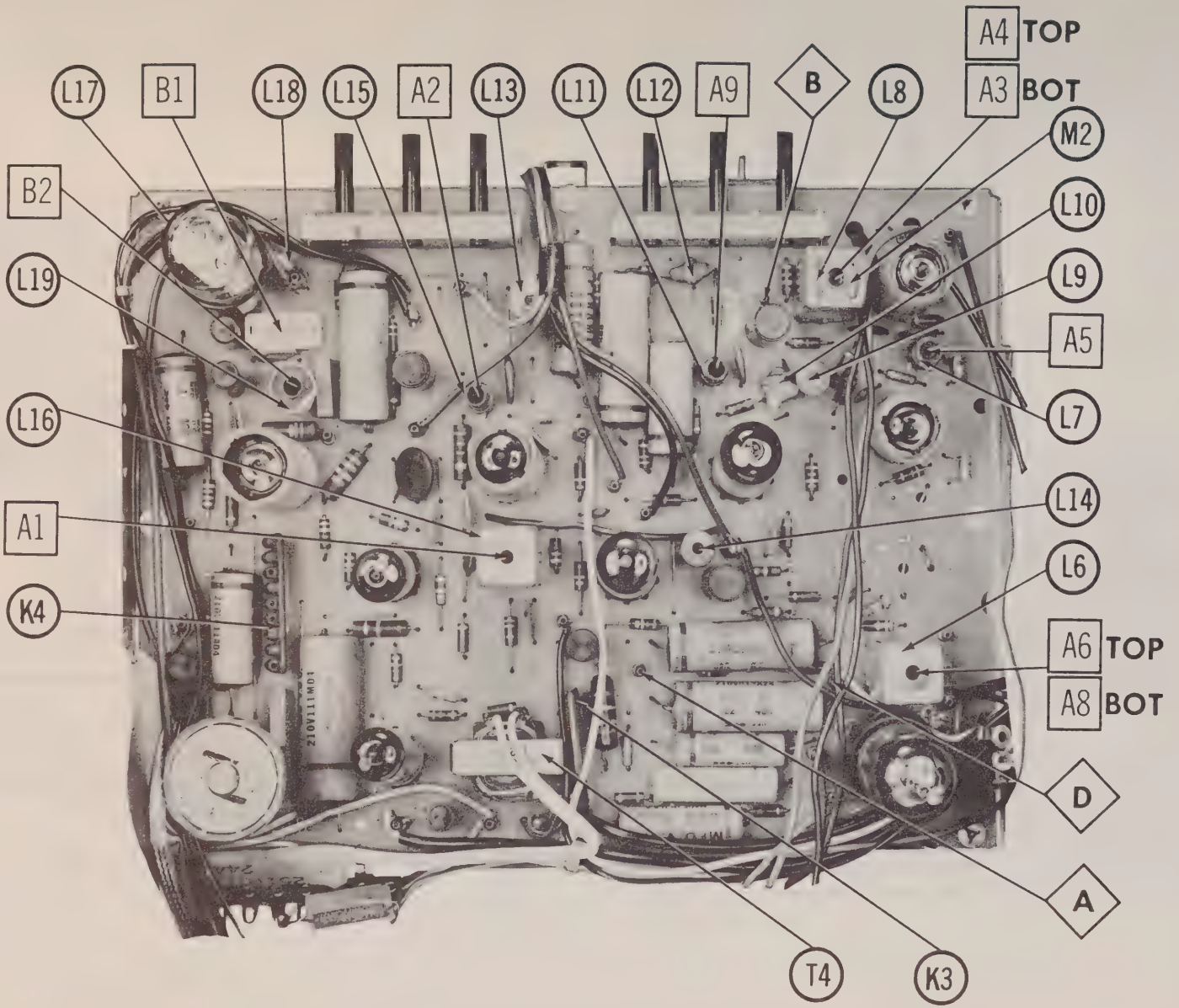
FIG. 5



A PHOTOFACT STANDARD NOTATION SCHEMATIC

Howard W. Sams & Co., Inc. 1957

ALTERNATE TUNER SCHEMATIC

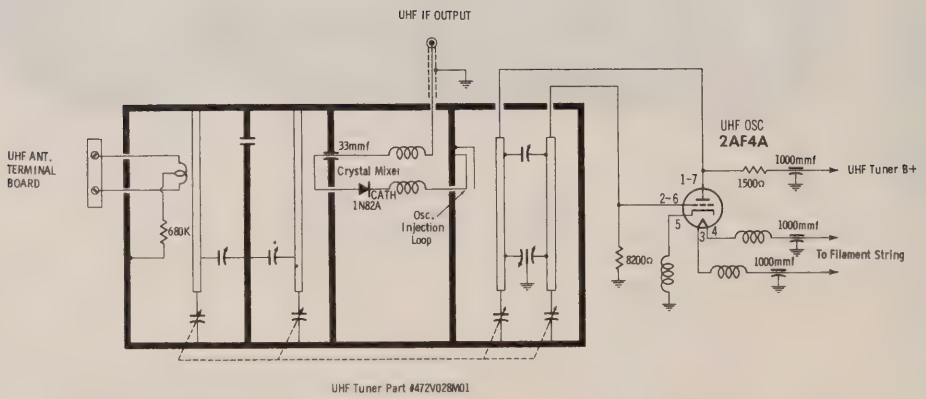


INDUCTOR AND ALIGNMENT IDENTIFICATION

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	2BN4	0Ω	580K	4Ω	3.5Ω	†1200Ω	0Ω	580K		
V2	5CG8	10K	†5800Ω	0Ω	2.5Ω	3.5Ω	†1200Ω	†10K	0Ω	230K
V3	3BZ6	480K	47Ω	5.5Ω	5Ω	†670Ω	†670Ω	0Ω		
V4	3CB6	.1Ω	150Ω	5Ω	4Ω	†670Ω	†670Ω	0Ω		
V5	6BH8	100Ω	10K	†5800Ω	10Ω	8.5Ω	120Ω	1Meg	†200Ω	†3900Ω
V6	3BN6	•400Ω	1.5Ω	10.5Ω	10Ω	†8400Ω	5.5Ω	‡560K		
V7	12C5/ 12CU5	82Ω	0Ω	11.5Ω	14Ω	0Ω	†1200Ω	†850Ω		
V8	3CS6	27K	0Ω	10.5Ω	11.5Ω	†30K	†15K	1Meg		
V9	6CN7	0Ω	1.7Meg	680K	0Ω	0Ω	0Ω	•1Meg	• †5Meg	1Ω
V10	12W6GT	NC	8.5Ω	†230Ω	†68Ω	•1.1Meg	TP	5.5Ω	0Ω	
V11	7AU7	†220K	•250K	1000Ω	20Ω	20Ω	†68K	2.4Meg	1000Ω	19Ω
V12	25DN6	NC	14Ω	0Ω	NC	470K	NC	19Ω	†1000Ω	TOP CAP ‡13Ω
V13	12D4	NC	NC	¶	NC	†20Ω	NC	23Ω	20Ω	
V14	1X2B		PINS	1 THRU 9	HAVE	INFINITE	RESISTANCE			TOP CAP ‡612Ω
V15	17CBP4	1Ω	100K	PIN 6 †200Ω	PIN 10 ‡1Meg	PIN 11 •230K	PIN 12 2.5Ω			

† MEASURED FROM OUTPUT OF M1.
‡ MEASURED FROM PIN 3 OF V13.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
NC NO CONNECTION.
TP TIE POINT.



UHF Tuner Part #472V028M01

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

ALTERNATE TUNER SCHEMATIC

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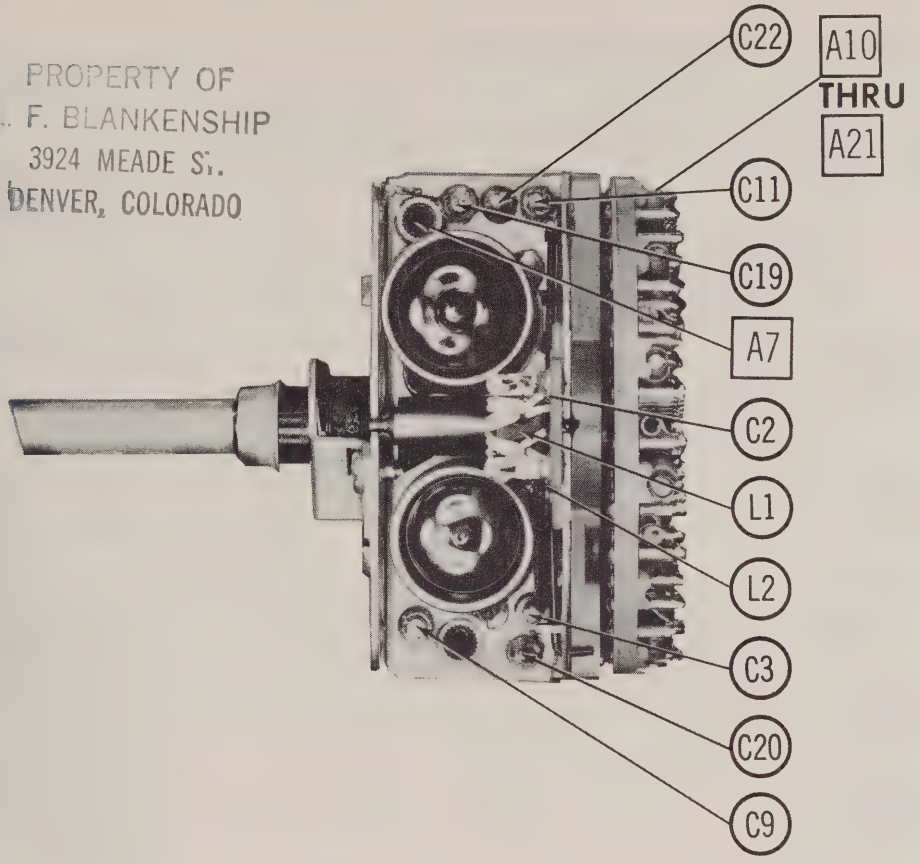
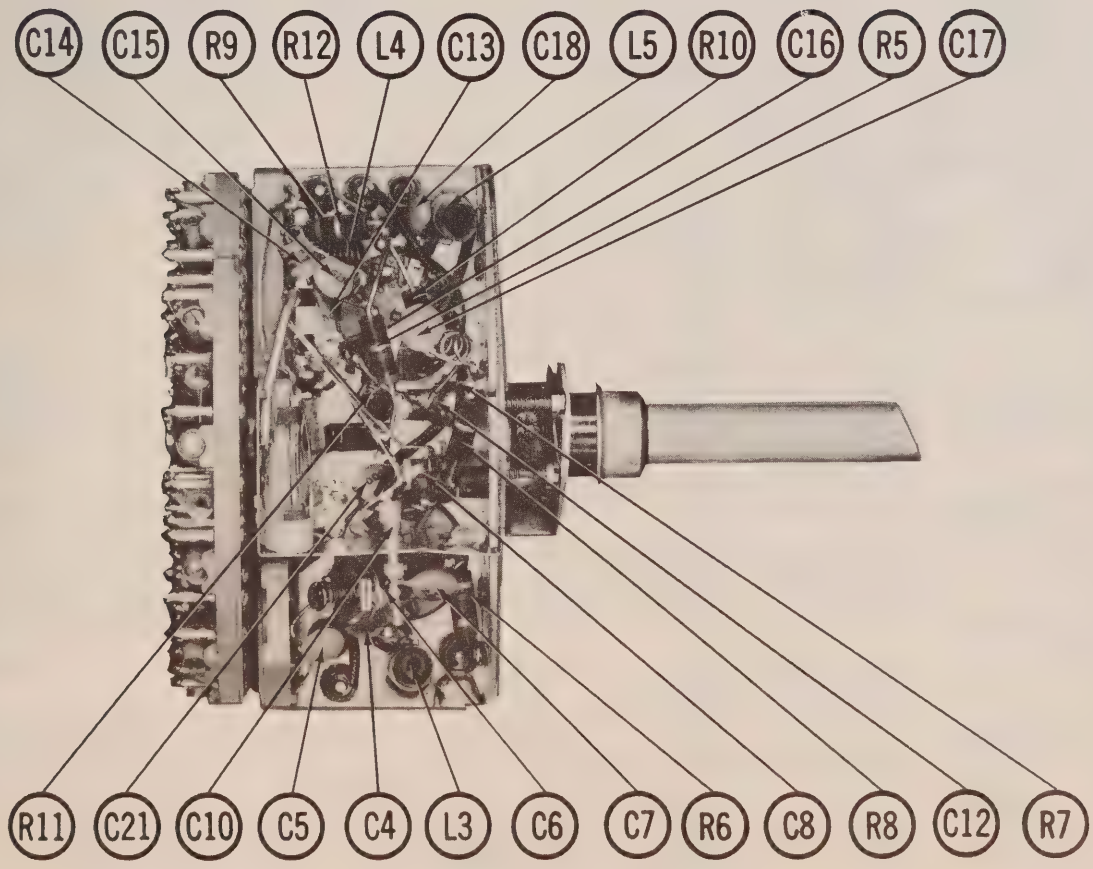


RF TUNER-TOP VIEW



RF TUNER-BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amplifier	2BN4	
V2	Mixer/Oscillator	5CG8	
V3	1st. Video IF Amp.	3B26	
V4	2nd. Video IF Amp	3CB6	Note 1
V5	Video Output	6BH8	
V8	Audio Detector	3BN6	
V7	Audio Output	12C5	
		12CL8	

ITEM No	USE	TYPE	NOTES
V6	Sync Sep.	3CS6	Note 2
V9	Vert. Mult.-Horiz. AFC	9CH7	
V10	Vert. Mult.-Vert. Output	12W8GT	
V11	Horiz. Mult	7AU7	Note 3
V12	Horiz. Output	2S2DN6	Note 4
V13	Damper	12D4	
V14	HV Rectifier	1X2B	

Note 1. Some versions use a 3DK6 in this application.
Note 2. Some versions use a 3BY6 in this application.
Note 3. Some versions use a 6AU7 or 6AU7A in this application.
Note 4. Some versions use a 25CD6GB in this application.

PICTURE TUBE

ITEM No	REPLACEMENT DATA: AIRLINE PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	NOTES
V15			17CBP4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP	VOLT	REPLACEMENT DATA: AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C3A	200	150	21BV016M01	AFH54-01-S5		CF747 ① TC749			
B	200	150							
C	160	150							
D	30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP	VOLT	REPLACEMENT DATA: AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	120		13L8D812K	BPD-00013	CD-12L	L10T12	ED-120	UC-5813	5GA-T13	
C3	30		13M320EA300J-Z3							5%
C4	15		13LRGP150K	MP0-SI 15	CD-150	L10Q15	ED-15		5TCC-Q15	10%
C5	15		13LRGP150J	MP0-SI 15	TCZ-15	C10Q15C	TCO-15		5TCC-Q15	5%
C9	3-8		31B-902-07							
C7	5		13LRC5060	MP0-SI 5		C10V5C	TCO-5	2T-555	5TCCB-V5	± .5MMF
C8	3-6		31B-902-01							
C9	800		13M320EA110Z-Z3							
C10	47		13M150U470J							
C11	800		13M320EA800Z-Z3							
C12	3-6		31B-902-01							
C13	51		13LRQ510K							10%
C14	1.5		13J-01-5							± .25MMF
C15	10		13LRU100D							± .5MMF N750
C16	10		13L8U A10D							N900
C17	1000		13L8X102Z	BPD-001	DD-102	BYA5DI	ED-1000	DC52L	5HK-D1	
C18	1000		13L8X102Z	BPD-001	DD-102	BYA5DI	ED-1000	DC52L	5HK-D1	
C19	80		13M320EA800H-Z3							
C20	800		13M320EA800Z-Z5							
C21	1000		13L8X102Z	BPD-001	DD-102	BYA5DI	ED-1000	DC52L	5HK-D1	
C22	800		13M320EA800Z-Z3							
C23	.22	400		P488N-22		CUB4P22		GEM-4022	47M-P22	
C24	.22	400		P488N-22		CUB4P22		GEM-4022	47M-P22	
C25	68		21 680		D6-68	L70T68	GP-680	UC-5368	5GA-T68	
C26	800			BPD-0008	DD-801	L80T8	ED-800		5GA-T8	
C27	1500	1000		BVD-15-1500	DD-152	BYA10G15	HD15-1500	DC32G15	5GA-D15	
C28	1500	1000		BVD-15-1500	DD-152	BYA10G15	HD15-1500	DC32G15	5GA-D15	
C29	4700	1000		BVD-15-4700	DD-472	BYA10D47	HD15-4700		5GA-D47	
C30	.047	400	21GV094M73			BCS647J		ACE6147	6SE-S47	
C31	4700			BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C32	39									10% N220
C33	27									10% N220
C34	.22	400		P488N-22		CUB4P22		GEM-4022	47M-P22	
C35	27			P488N-4	DF-104	CUB4P1		GEM-401	47M-P1	10% N220
C36	.047	400				BCS647J		ACE6147	6SE-S47	
C37	4700	1400	21VS3006M1	BVD-15-4700	DD50-473	BYC30D47	HD15-4700			
C38	.18	400		P488N-18		CUB4P18		GEM-4018	47M-P18	
C39	6.8		21TV038A89	MP0-SI 6.8	TCZ-SR8	C10V8SC	TCO-8.8		5TCCB-V68	
C41	150									10% N230
C42	4700	1000		BVD-15-4700	DD-472	BYA10D47	HD15-4700		5GA-D47	
C43	4700	1000		BVD-15-4700	DD-472	BYA10D47	HD15-4700		5GA-D47	
C45	600		21SV300M18	BPD-0008	DD-801	L07T8			5GA-T8	①
C49	.028	600	21GV103M23			BCS823J			6SE-S23	
C50	.0047	600	21GV104M73			BCS547J		ACE6247	6SE-D47	
C51	4700	1000		BVD-15-4700	DD-472	BYA10D47	HD15-4700		5GA-D47	
C48	10000			BPD-01	DD-103	BYA5EI	ED-01	DC51L	5HK-S1	
C52	.47			BPD-00027	DT-471	L07T27	ED-270	UC-5237	5GA-T27	
C53	.47	400		P488N-47		CUB4P47		GEM-4047	47M-P47	
C54	4700	1000		BVD-15-4700	DD-472	BYA10D47	HD15-4700		5GA-D47	
C55	.047	600	21GV10M02			BCS647J			6SE-S47	
C56	.0039	600								10% ② 10%
C57	.033	600		P688N-033	DF-303	CUB6S33		GEM-6133	67M-S33	
C58	.033	600		P688N-033	DF-303	CUB6S33		GEM-6133	67M-S33	
C59	470		21SV194M71	1686-00047		L07T47			5GA-T47	10%
C57	4700	1000		BVD-15-4700	DD-472	BYA10D47	HD15-4700		5GA-D47	
C58	.01	600	21GV01M02			BCS81J		ACE611	6SE-S10	
C60	.01	600	21GV01M03			BCS81J		ACE611	6SE-S10	
C50	.1	600		P488N-1	DF-104	CUB4P1		GEM-401	47M-P1	
C61	1000		21SV31M02	1684-001		1R5D2			5HK-J1	10% 10% N220
C62	100									
C63	18-180		21TV501M01							
C64	.01	600	21GV01M02			BCS81J		ACE611	6SE-S10	
C65	.1	600		P488N-1	DF-104	CUB4P1		GEM-401	47M-P1	
C66	.22	600		P488N-22		CUB4P22		GEM-4022	47M-P22	
C67	.047	600	21GV104M73			BCS647J		ACE6147	6SE-S47	
C68	.047	600								③ 10%
C69	.15	600		P488N-15		CUB4P15		GEM-4015	47M-P15	
C70	.033	600		P688N-033	DF-303	CUB6S33		GEM-6133	67M-S33	④
C71	680			21 680	D6-681	L70T68	GP-680	UC-5368	5GA-T68	

PARTS LIST AND DESCRIPTIONS

CAPACITORS (cont)

ITEM No	RATING: CAP	VOLT	REPLACEMENT DATA: AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C72	680			SI 680	D6-681	L70T68	GP-680	UC-5368	5GA-T68	
C73	680			SI 680	D6-681	L70T68	GP-680	UC-5368	5GA-T68	
C74	1000	1400	21SV3009M02	BVD-15-1000	DD50-102	BYC30D10	HD15-1000	DC30Q	30GA-D	
C75	470	2000	21SV3003M20	HVD-30-470	DD30-471	HV630T47	HD3-470	DC30347	30GA-T47	⑤

1 Some versions may use a 470MMF in this application.
2 Some versions may use a .0047MFD in this application.
3 Some versions may use a 100MMF @ 5KV, 10% ceramic disc (Part #21SV300M34) in this application.
4 Some versions may use a .15MFD @ 400V in this application
5 Not used in some versions

CONTROLS

ITEM No.	RATING: RESIST-ANCE	WATTS	REPLACEMENT DATA: AIRLINE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	37GV037M01		A47-500K-Z	TA85A		Volume
B	Shaft				F8-3	Not Req.		
C	Switch				EWE-2	U8-28		
R2A	1M	½	37GV030M04	AB-30	A47-1M-S	BU-1U8	TA85L	Picture
B	Shaft			AK-7	F8-3	S8U	Not Req.	
R3A	200K	½	37GV029M03					Vert. Lin.
B	1.5Meg							Vert. Hold
C	100K		37GV029M03					Brightness
R4A	600Ω	½						Quieting
B	5Meg							Height
C	60K							Horiz. Hold

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: AIRLINE PART No.	IRC PART No.	NOTES
R5	1000Ω			BTS-1000	
R6	4700Ω			BTS-4700	
R7	10K			BTS-10K	
R8	220K			BTS-220K	
R9	1000Ω			BTS-1000	
R10	10K			BTS-10K	
R11	10K			BTS-10K	
R12	5600Ω			BTS-5600	
R13	180Ω	7	25IV020M05	TCO-18	
R14	18Meg 5%		25GV21JA56	BTS-18Meg 5%	
R15	100K			BTS-100K	
R16	39K				
R17	470K			BTS-470K	
R18	5600Ω			BTS-5600	
R19	470Ω			BTS-470	
R20	47Ω			BTS-47	
R21	470Ω			BTS-470	
R23	150Ω			BTS-150	
R23	6800Ω	9%	25GV21GA23		
R24	47K			BTS-47K	
R25	1Meg			BTS-1Meg	
R26	8200Ω			BTS-8200	
R27	2700Ω			BTS-2700	
R28	2700Ω			BTS-2700	
R29	6800Ω			BTS-6800	
R30	2700Ω			BTS-2700	
R31	130Ω			BTS-130	
R32	22K			BTS-22K	
R33	10K			BTS-10K	
R34	6800Ω			BTS-6800	
R35	100Ω			BTS-100	
R36	3300Ω			BTS-3300	
R37	100K			BTS-100K	
R38	1Meg			BTS-1Meg	
R39	330K			BTS-330K	
R40	470Ω			BTS-470	
R41	15K			BTS-15K	
R42	560K			BTS-560K	

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: AIRLINE PART No.	IRC PART No.	NOTES
R43	820Ω	1	250V328A22	BTA-820	
R44	680Ω			BTS-680	
R45	82Ω			BTS-82	
R46	27K			BTS-27K	
R47	56K			BTS-56K	
R48	33K			BTS-33K	
R49	39K			BTS-39K	
R50	15K	1	250V21A53	BTA-15K	
R51	1.5Meg			BTS-1.5Meg	
R52	470K			BTS-470K	
R53	82K			BTS-82K	
R54	8200Ω 5%		250V218A22	BTS-8200 5%	
R55	3.3Meg			BTS-3.3Meg	Note 1
R56	27K			BTS-27K	
R57	150Ω			BTS-150	
R58	1Meg			BTS-1Meg	
R59	68K			BTS-68K	
R60	560Ω				
R61	560Ω				
R62	47K			BTS-47K	
R63	470K			BTS-470K	
R64	68K	1	250V218A83	BTA-68K	
R65	1000Ω			BTS-1000	
R66	220K			BTS-220K	
R67	220K			BTS-220K	
R68	330K	1	250V33A34	BTA-330K	
R69	15K			BTS-15K	
R70	150Ω			BTS-150	
R71	470K			BTS-470K	
R73	1000Ω	1	250V31A02	BTA-1000	
R75	2200Ω				
R74	2.2Ω		25IV002A29	BTS-2.2	
R75	100K	1	V-9927-18	BTA-100K	
R76	560Ω	4	250V32B04		
R77	27Ω	15	25IV211M06		
R78	330K			BTS-330K	
R79	4.7Ω	5	25GV004M01		

Note 1. Some versions may use 2.2Meg in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA: AIRLINE PART No.	Halldorson Part No	Merit Part No	RCA TYPE No.	Ram Part No	Stancor Part No.	Thordorson Part No	Triad Part No
T1	Vert. Output	450V033M02	21900①	A-3822 ②				108X ②	
T2A	Horiz. Pwr. (9.6MH)	490V003M01	DF807	M2F-92	325GR	T90F18/43	DY-16A	Y-41	Y-41 &
B	(90°)-Vert. (38.5MH)		③ ④	③ ⑤	③ ⑤	③ ⑤	③ ④	③ ④	MW17 ④
	Alt. Yoke	496V002M06							
	Yoke Clamp	78BV064M04							CL-1
M4	Rear Cover & Centering Device	78LV01M01							YCI
T3	Horiz. Output	495V004M06						FLY-95 *	
	Alt. Horiz. Output	495V004A04						FLY-95 *	

① Use # to 1 turns ratio.
② Connect B- to vert. output tube screen grid.
③ Requires new rear cover, centering device and yoke clamping device. Use original yoke damping network, if necessary.
④ To mount same as original, connect yoke terminal #1 to horizontal output transformer #4, yoke terminal #3 to horizontal output transformer #5, yoke terminal #2 and #7 to resistor R73. To mount with leads out bottom, connect yoke terminal #3 to horizontal output terminal #4, yoke terminal #1 to horizontal output transformer #5, yoke terminal #2 and #7 to resistor R73.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordorson Replacement Connections	Triad Replacement Connections
6						6	
5						5	
4						4	
T						T	
3						3	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI	SEC	REPLACEMENT DATA: AIRLINE PART No.	Halldorson Part No.	Merit Part No.	Stancor Part No.	Thordorson Part No.	Triad Part No.	NOTES
T4	3400Ω	3-4Ω	430V031M01	21101 ①		A-3025 ②	A-3533 ①	26B58 ①	S-13X ①
	3400Ω	3-4Ω	430V031M01 ③	21101 ③		A-3025 ②	A-3533 ①	26B58 ①	S-13X ①

① Use orig. channel mtg. frame and terminal board
② Alternate part number used in some versions

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: AIRLINE PART No.	GUAM Part No.	NOTES
SP1	4"	PM	3-4Ω	570V015M01	4A07	

COILS (RF-IF)

ITEM No.	USE	AIRLINE PART No.	NOTES
L1	Ant. Trans.	31T-3068-01	38A-31-01
L3	IF Trap Coil	34A-783	
L2	IF Trap Coil	34A-783	31U-380
L4	RF Choke		
L5	Mixer Plate Coil		

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	MEISSNER Part No.	MERIT Part No.	MILLER Part No.	NOTES
L6	1st. Video IF	23SV003M01				Includes 41.25MC Trap
L7	2nd. Video IF	23SV004M01				
L8	3rd. Video IF	23SV022M01				Includes Cape., coil, crystal
L9	Series Peaking Coil	V-18798-1	19-3100	TV-181	6113	100 Microhenries
L10	Shunt Peaking Coil	V-18460-8		TV-180	6123	350 Microhenries
L11	4.5MC Trap	V-18798-1				
L12	Series Peaking Coil	V-18798-3	19-3138		6186	140 Microhenries
L13	Shunt Peaking Coil	V-18798-6	TV-180		6123	350 Microhenries
L14	Series Peaking Coil	V-18798-1	19-3100	TV-181	6113	100 Microhenries
L15	Sound IF	V-18793-2				
L16	Quadrature Coil	23SV007M03				
L17	RF Choke	23GV013M10	19-1008		6834	14 Microhenries
L18	RF Choke	23GV013M10	19-1008		6834	14 Microhenries

TRANSFORMER (HORIZ. OSC.)

ITEM No	DC RES: PRI	SEC	REPLACEMENT DATA: AIRLINE PART No.	MEISSNER Part No.	MERIT Part No.	MILLER Part No.	RCA TYPE No.	Ram Part No	Thordorson Part No.	NOTES
L19	95Ω		230V005A01							

FILTER CHOKE

ITEM No	RATINGS: TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE @ CURRENT 1000 (%)	REPLACEMENT DATA: AIRLINE PART No.	Halldorson Part No.	Merit Part No.	Stancor Part No.	Thordorson Part No.	Triad Part No.
L20	340A	18Ω	.43 HY	430V032E01					C-34X
	340A	18Ω	.43 HY	430V032M01 ①					C-34X

① Alternate part number used in some versions.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	AIRLINE Part No	REPLACEMENT DATA
E1	Antenna Isolation	330MMF, 220K	21GV004M02	Centralab BC-431
E2	Antenna Isolation	330MMF, 220K	21GV004M02	Centralab BC-431
E3	Vert. Integrator	2000MMF, 5000MMF, 5000MMF, 22K, 8200Ω, 8200Ω	PC-304	Aerovox PA-501 Centralab PC-104 Cornell-Dubilier 1187M6 Erie 1408-01 Sprague 103C12
K4	AFC Circuit	82MMF, 390MMF, 82MMF, 680MMF, 12K, 4700Ω, 1Meg, 220K, 680K	21GV002M01	

RECTIFIERS

ITEM No.	RATING: ORIG. CURRENT (Measured)	REPLACEMENT DATA: AIRLINE	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	350A	295V005M02 ②	1035A ①	1N1007 ②	MR350 ①	350A ①	

① Selenium type. ② Germanium type.

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: AIRLINE PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M3	1N295		1N50	1N34A	Video Detector

MISCELLANEOUS

ITEM No	PART NAME	AIRLINE PART No.	NOTES
M3	Tuner	470V027M01	VHF (Standard Coil Part #7NS-003)
	Tuner	470V033M01	VHF (Standard Coil Part #7NS-004)
	Tuner	472V038M02	UHF - Used with VHF Tuner Part #470V038M01
M4	Centering Device	78LV01M01	Includes yoke cover
M5	Ion Trap	75TV50A01	

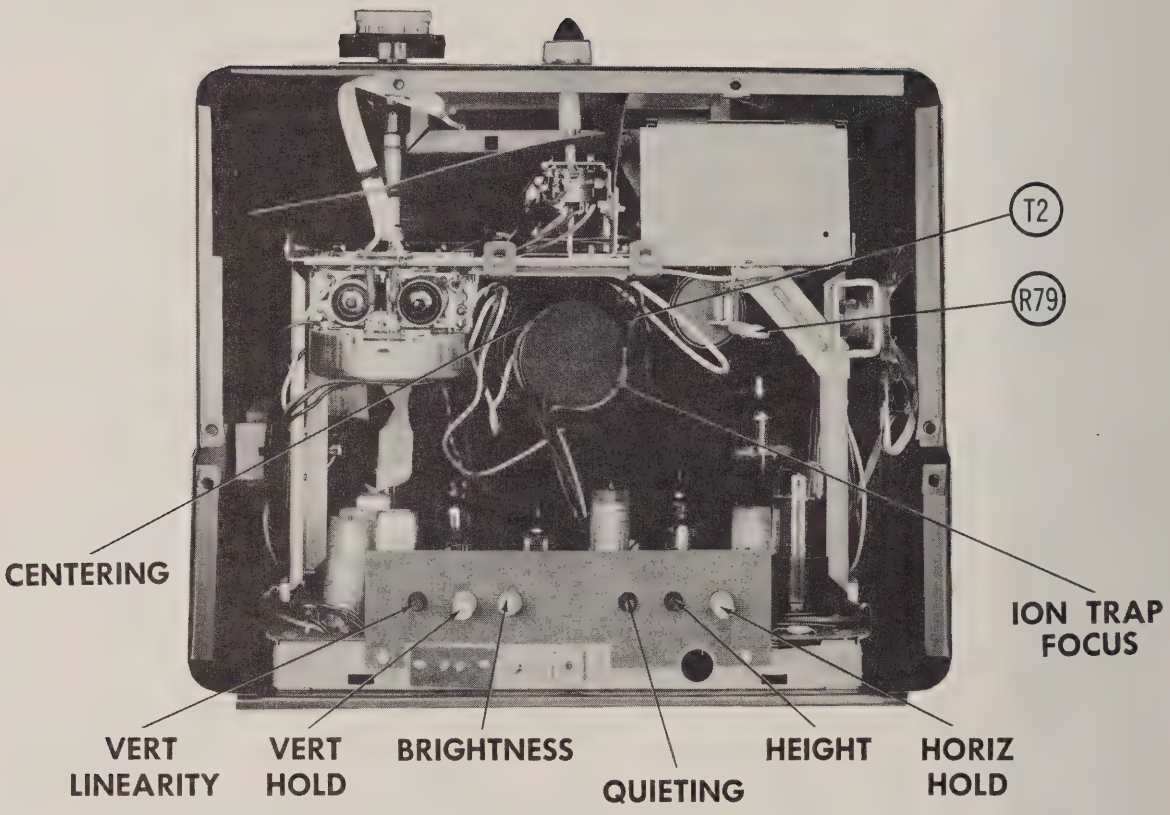
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Mask	61V002M13	
Knob	55V032M09	VHF Channel Selector
Knob	55V053M01	UHF Channel Selector
Knob	55V031M03	VHF Fine Tuning
Knob	V-14683-15	On-off-volume, picture

AIRLINE MODELS GTM-4032A, GTM-4132A

FOLDER 3



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a short clip lead across the horizontal frequency coil (L19). This may be done from the top of the chassis.

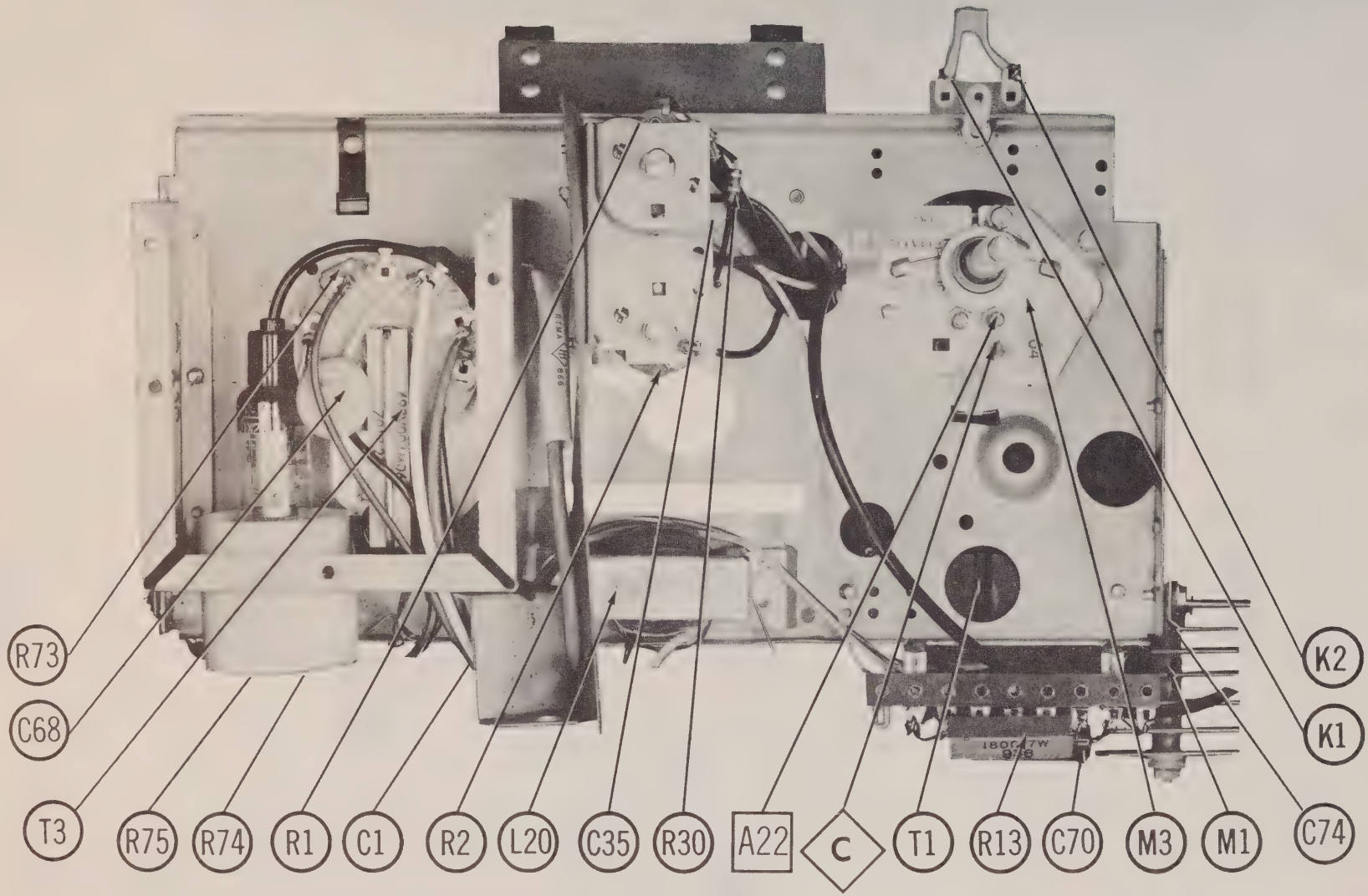
Set the horizontal hold control (R4C) to the center of its range.

Connect the DC probe of the VTVM to pin 7 (grid) of the 7AU7 (V11). Common to chassis.

With the receiver tuned to a TV station, adjust the horizontal multivibrator trimmer (B1) for zero voltage on the VTVM.

Remove the clip lead from L19.

Adjust the horizontal frequency slug (B2) for zero voltage on the VTVM and check adjustment by switching off station and back again. The receiver should pull into horizontal synchronization on all channels.



SHELF CHASSIS TOP VIEW

PHOTOFACT* Folder

*TRADE MARK

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

MODEL B3241 (Ch. 329)

HOFFMAN MODELS B1191, U, B1201, U, B1211, U, B3241, U, B3251, U, K1191, U, K1211, U, M1191, U, M1201, U, M1211, U, M3241, U, M3251, U, P1201, U, P1211, U, P3241, U, P3251, U, W1201, U, W3251, U (Ch. 329, U, 330)

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RETMA MEMBER

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 6 push-on type control knobs from the front.
2. Loosen 7 wood screws and remove the rear cover.
3. Remove the picture tube socket, yoke plug, HV lead and 2 speaker leads.
4. Remove 1 wood screw from the top chassis brace.
5. Remove 2 chassis bolts from the bottom.
6. Remove the chassis.
7. Remove 4 wood screws and the speaker.

MODEL B3241 (Ch. 329)

HOFFMAN MODELS B1191, U, B1201, U, B1211, U, B3241, U, B3251, U, K1191, U, K1211, U, M1191, U, M1201, U, M1211, U, M3241, U, M3251, U, P1201, U, P1211, U, P3241, U, P3251, U, W1201, U, W3251, U (Ch. 329, U, 330)

TRADE NAME	Hoffman	MODELS	CHASSIS
		B1191, B1211, B3241, K1191, K1211, M1191, M1211, M3241, P1211, P3241	329
		B1191U, B1201U, B1211U, B3241U, B3251U, K1191U, K1211U, M1191U, M1201U, M1211U, M3241U, M3251U, P1201U, P1211U, P3241U, P3251U, W1201U, W3251U	329U
		B1201, B3251, M1201, M3251, P1201, P3251, W1201, W3251	330
MANUFACTURER	Hoffman Radio Corp., 6200 S. Avalon Blvd., Los Angeles 3, Calif.		
TYPE SET	Television Receiver		
TUBES	Nineteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 185 Watts, 1.6 Amp. @ 117 Volts AC		
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 4 wood screws and the plastic trim at the top of the safety glass. Remove the safety glass.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 2 or 6 and 10. Readjust the ion trap for best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The horizontal frequency coil is used as the horizontal hold control. Adjust the horizontal hold until the picture synchronizes horizontally. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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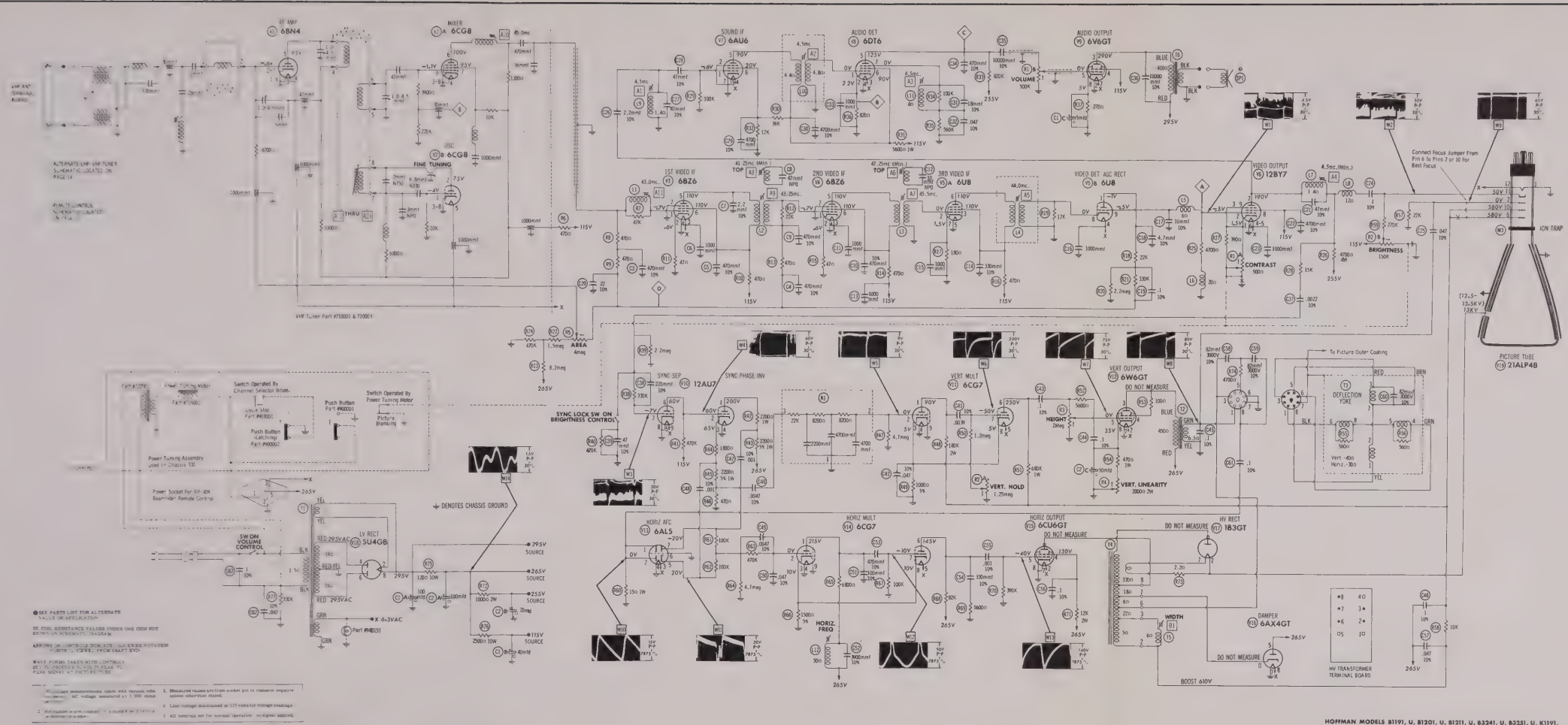
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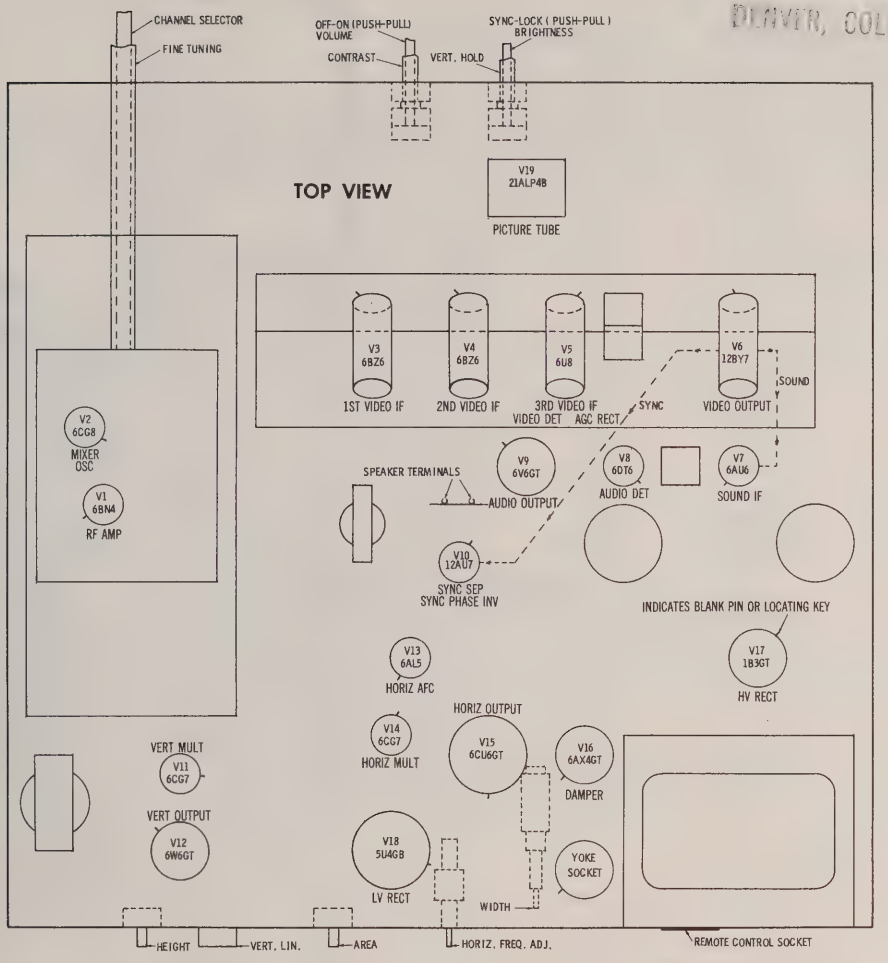
MIXER V2A 6CG8
OSC V2B 6CG8
FINE TUNING
SOUND IF V7 6AU6
AUDIO DET V8 6DT6
AUDIO OUTPUT V9 6V6GT
VOLUME 500K
1ST VIDEO IF V3 6BZ6
2ND VIDEO IF V4 6BZ6
3RD VIDEO IF V5A 6U8
VIDEO DET AGC RECT V5B 6U8
VIDEO OUTPUT V6 12BY7
CONTRAST 500Ω
BRIGHTNESS 150K
Connect Focus Jumper From Pin 8 to Pins 2 or 10 For Best Focus
ION TRAP
PICTURE TUBE V19 21ALP4B
AREA 4meg
SYNC LOCK SW ON BRIGHTNESS CONTROL
SYNC SEP V10 12AU7
SYNC PHASE INV
VERT MULT V11 6CG7
VERT OUTPUT V12 6W6GT
DO NOT MEASURE
HEIGHT 2meg
VERT. HOLD 1.25meg
VERT. LINEARITY 2800Ω 2W
To Picture Outer Coating
DEFLECTION YOKE
Vert -400 Horiz -300
HORIZ AFC V13 6AL5
HORIZ MULT V14 6CG7
HORIZ OUTPUT V15 6CU6GT
HV RECT V17 183GT
HORIZ. FREQ
WIDTH
DAMPER V18 6AX4GT
BOOST 610V
HV TRANSFORMER TERMINAL BOARD
LV RECT V16 5U4GB
SW ON VOLUME CONTROL
Power Socket For RP-ADN Boomerider Remote Control
Power Tuning Assembly Used in Chassis 130
Switch Operated By Channel Selector Rotate
Push Button Latching Part #400300
Push Button Part #400301
Switch Operated By Power Tuning Motor
Picture Blanking
DENOTES CHASSIS GROUND
295V SOURCE
265V SOURCE
255V SOURCE
115V SOURCE
6.3VAC
RED 295VAC
GRN
YEL
BLK
RED-YEL
ALTERNATE UHF VHF TUNER SCHEMATIC LOCATED ON PAGE 14
VHF Tuner Part #703001 & 703003
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION LOOKING AT CONTROL FROM SHAFT END
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 5 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1. Voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1,000 ohms per volt.
2. Resistance measurements taken with receiver turned off unless otherwise stated.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation - no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

HOFFMAN MODELS B1191, U, B1201, U, B1211, U, B3241, U, B3251, U, K1191, U, K1211, U, M1191, U, M1201, U, M1211, U, M3241, U, M3251, U, P1201, U, P1211, U, P3241, U, P3251, U, W1201, U, W1251, U (Ch. 329, U, 330)

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **V18**

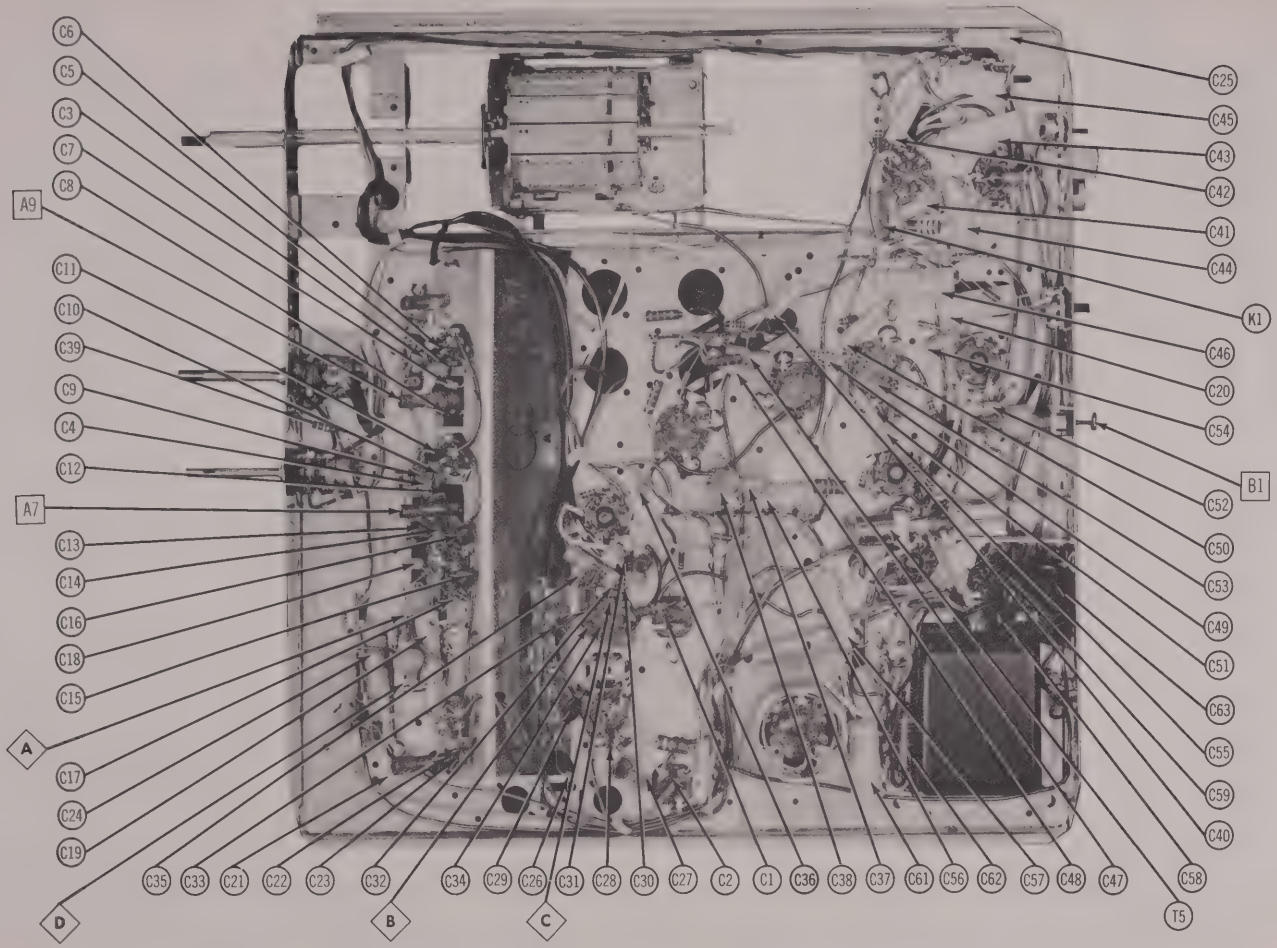
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, V6**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V19**
Has pic, no sound - **V7, V8, V9**

SYNC FAILURE
No vert. sync - **V10**
No horiz. sync - **V10, V13**
No vert. or horiz. sync - **V10**

SWEEP FAILURE
No raster, has sound - **V13, V14, V15, V16, V17, V19**
No vertical deflection - **V11, V12**
Poor vert. linearity or foldover - **V11, V12**
Poor horiz. linearity or foldover - **V14, V15, V16**
Narrow picture - **V14, V15, V16, V18**
Vert. off freq. - **V11**
Horiz. off freq. - **V14**

HOFFMAN MODELS B1191, U, B1201, U, B1211, U, B3241, U, B3251, U, K1191, U, K1211, U, M1191, U, M1201, U, M1211, U, M3241, U, M3251, U, P1201, U, P1211, U, P3241, U, P3251, U, W1201, U, W3251, U (Ch. 329, U, 330)

FOLDER 4



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

HOFFMAN MODELS B1101, U, B1201, U, B1211, U, B2241, U, B2251, U, K1191, U, K1211, U, M1191, U, M1201, U, M1211, U, M2241, U, M2251, U, P1201, U, P1211, U, P2241, U, P2251, U, W1201, U, W2251, U (CH. 329, U, 330)

FOLDER 4

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.
Connect the negative lead of a 60 volt bias supply to pin 5 (grid) of V15. Positive to chassis.

SOUND IF ALIGNMENT

Set the contrast control fully clockwise.
Pre-set A3 fully counter clockwise.
Connect 1000MMF capacitor across the terminals of the VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	.005MFD	High side to point (A). Low side to chassis.	4.5MC (Unmod)	Between any two channels	DC probe thru 10K to point (B). Common to chassis.	A1, A2	Adjust for maximum deflection. Reduce generator output as necessary to keep voltage on VTVM between 3.5 and 4.5 volts while making these adjustments.
2.	"	"	"	"	DC probe thru 10K to point (C). Common to chassis.	A3	Turn A3 clockwise until a MINIMUM is located, continue turning clockwise until voltage is 100 volts, ± 3 volts. Remove the signal and retouch A2 for maximum deflection.

4.5MC TRAP ALIGNMENT

Set the contrast control fully counter clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
3.	.005MFD	High side to point (A). Low side to chassis.	4.5MC (Unmod)	Between any two channels	DC probe thru detector (Fig. 1) to pin 11 (cathode) of picture tube. Common to chassis.	A4	Adjust for MINIMUM deflection.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point (D). Positive to chassis.
Set the contrast control fully counter clockwise.
Connect 1000MMF capacitor across the VTVM and the scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	.005MFD	High side to point (E). Low side to chassis.	Not used	44.0MC (Unmod)	Between any two channels	USE VTVM. DC probe thru 10K to point (A). Common to chassis.	A5	Adjust for maximum deflection.
5.	"	"	"	47.25MC	"	"	A6	Adjust for MINIMUM deflection.
6.	"	"	"	45.4MC	"	"	A7	Adjust for maximum deflection.
7.	"	"	"	41.25MC	"	"	A8	Adjust for MINIMUM deflection.
8.	"	"	"	43.25MC	"	"	A9	Adjust for maximum deflection.
9.	"	"	"	43.0MC	"	"	A10	Adjust for MINIMUM deflection.
10.	"	"	"	43.0MC	"	"	A11	Adjust for maximum deflection.
11.	"	"	"	45.0MC	"	"	A10	Adjust for maximum deflection.
12.	"	"	45.0MC	45.0MC 45.75MC	"	High side thru 10K to point (A). Low side to chassis.		Check for response curve similar to Fig. 2. If necessary, SLIGHTLY retouch A5, A7 and A9 for desired response.

OSCILLATOR ALIGNMENT

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point (A). Low side to chassis.	A12	Adjust to place sound marker in trap notch as in Fig. 3. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A13	
			201MC	199.25MC 203.75MC	11		A14	
			195MC	193.25MC 197.75MC	10		A15	
			189MC	187.25MC 191.75MC	9		A16	
			183MC	181.25MC 185.75MC	8		A17	
			177MC	175.25MC 179.75MC	7		A18	
			85MC	83.25MC 87.75MC	6		A19	
			79MC	77.25MC 81.75MC	5		A20	
			69MC	67.25MC 71.75MC	4		A21	
			63MC	61.25MC 65.75MC	3		A22	
			57MC	55.25MC 59.75MC	2		A23	

ALIGNMENT INSTRUCTIONS (cont)

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

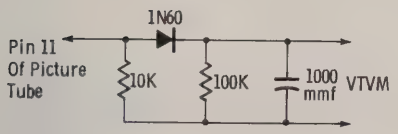


FIG. 1

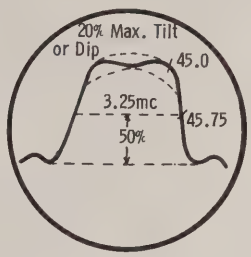


FIG. 2

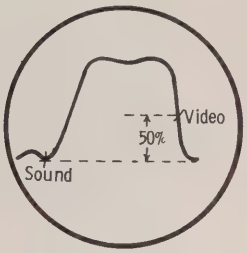
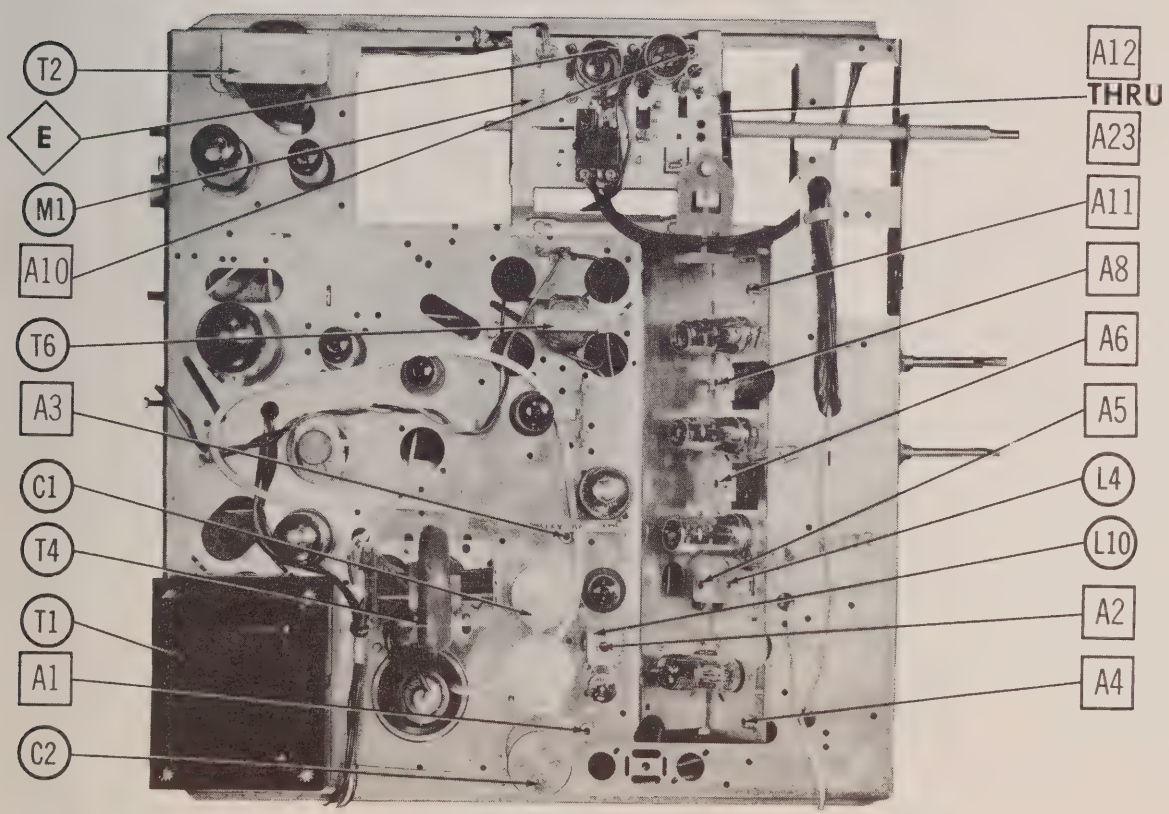


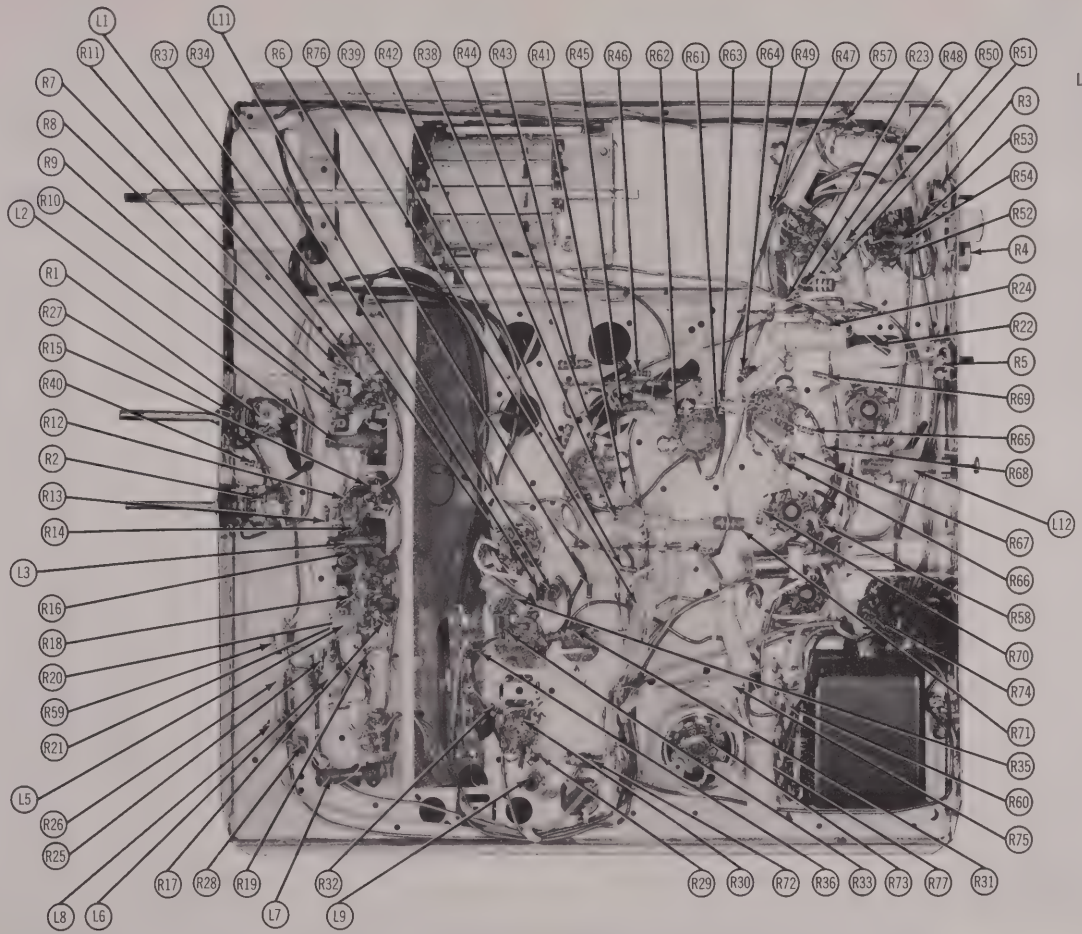
FIG. 3



CHASSIS TOP VIEW

HOFFMAN MODELS B1191, U, B1201, U, B1211, U, B3241, U, B3251, U, K1191, U, K1211, U, M1191, U, M1201, U, M1211, U, M3241, U, M3251, U, P1201, U, P1211, U, P3241, U, P3251, U, W1201, U, W3251, U (Ch. 329, U, 330)

FOLDER 4



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

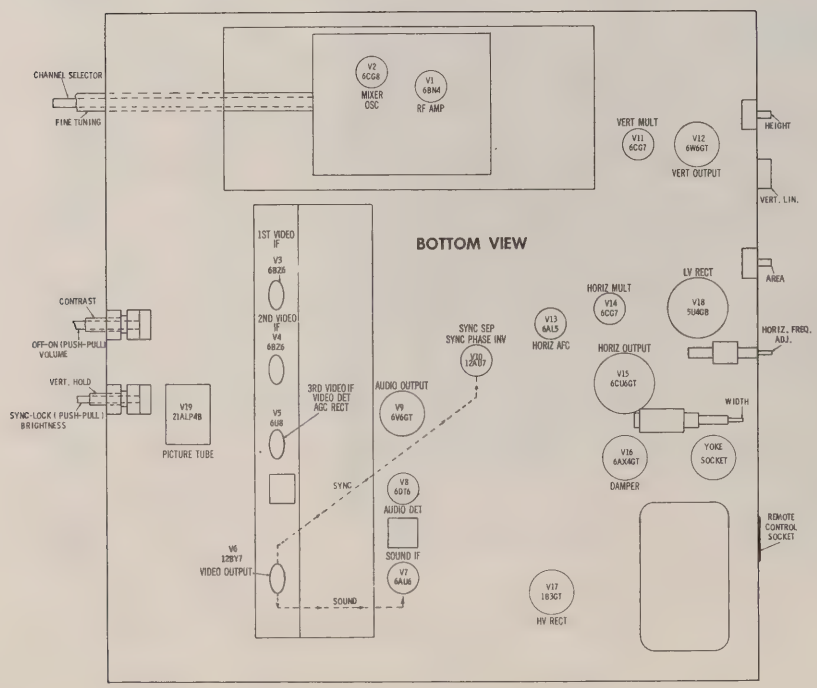
HOFFMAN MODELS B1191, U. B1201, U. B1211, U. B3241, U. B3251, U. K1191, U. K1211, U. M1191, U. M1201, U. M1211, U. M3241, U. M3251, U. P1201, U. P1211, U. P3241, U. P3251, U. W1201, U. W3251, U (Cn. 329, U. 330)

FOLDER 4

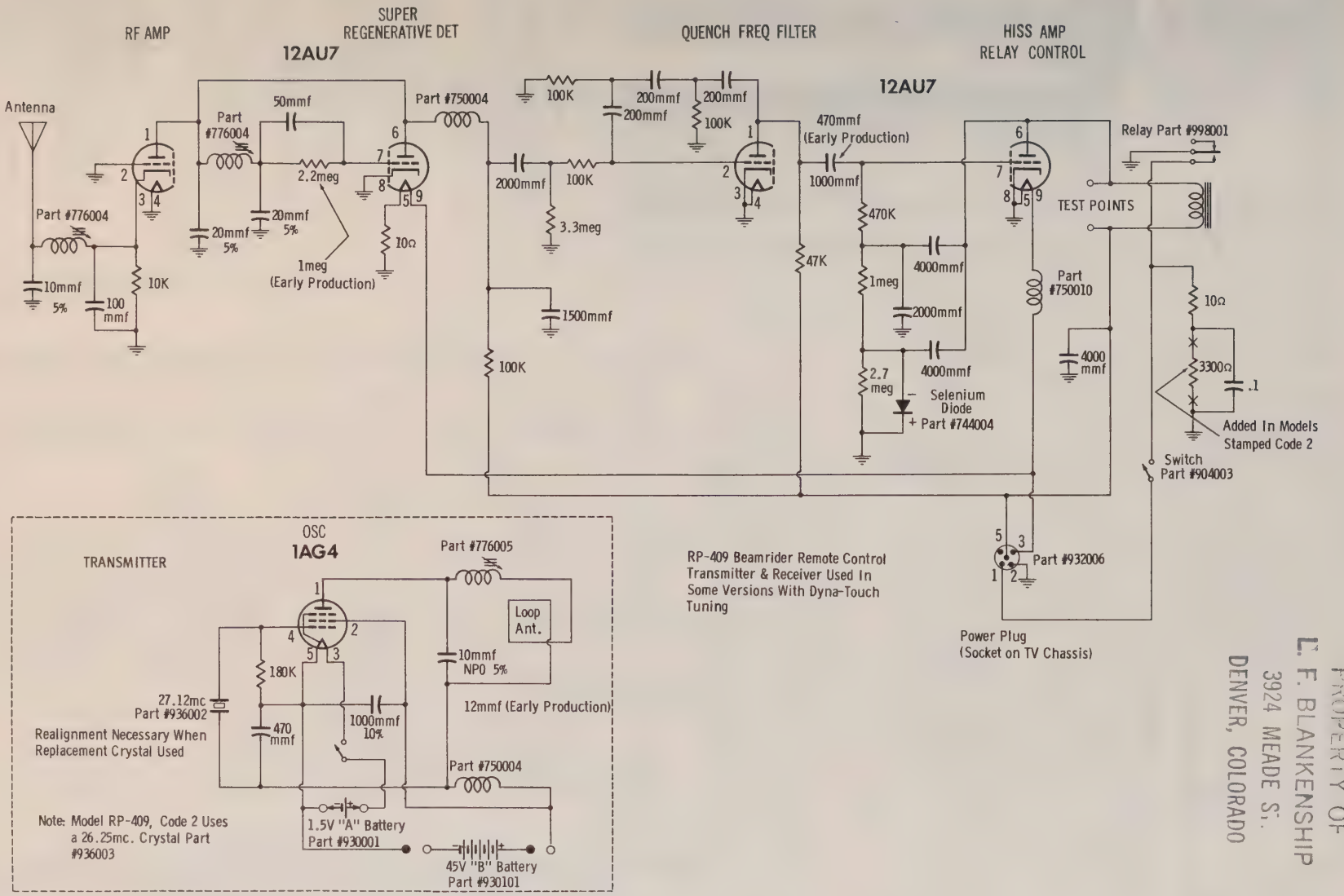
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BN4	0Ω	1.8Meg	0Ω	.1Ω	†3700Ω	0Ω	1.8Meg		
V2	6CG8	10K	†9400Ω	0Ω	0Ω	.1Ω	†3600Ω	†13K	0Ω	220K
V3	6BZ6	1.7Meg	47Ω	.1Ω	0Ω	†3100Ω	†3100Ω	0Ω		
V4	6BZ6	1.7Meg	47Ω	.1Ω	0Ω	†3100Ω	†3100Ω	0Ω		
V5	6U8	1.6Meg	.1Ω	†3100Ω	.1Ω	0Ω	†3100Ω	180Ω	.1Ω	4700Ω
V6	12BY7	•140Ω	4700Ω	•140Ω	.1Ω	.1Ω	0Ω	†5800Ω	†2600Ω	•140Ω
V7	6AU6	100K	0Ω	0Ω	.1Ω	†8200Ω	†47K	0Ω		
V8	6DT6	4.8Ω	820Ω	.1Ω	0Ω	†820K	†8200Ω	560K		
V9	6V6GT	NC	0Ω	†410Ω	†2600Ω	0Ω	NC	.1Ω	270Ω	
V10	12AU7	†4500Ω	†470K	4500Ω	0Ω	0Ω	†470K	2.5Meg	0Ω	.1Ω
V11	6CG7	‡200K	4.7Meg	1000Ω	0Ω	.1Ω	‡690K	•1.5Meg	1000Ω	0Ω
V12	6W6GT	NC	.1Ω	†570Ω	†670Ω	•1.1Meg	TP	0Ω	•1200Ω	
V13	6AL5	15Ω	15Ω	.1Ω	0Ω	4.8Meg	0Ω	4.8Meg		
V14	6CG7	†7900Ω	5.2Meg	1500Ω	0Ω	.1Ω	†82K	100K	1500Ω	0Ω
V15	6CU6GT	TP	.1Ω	NC	†12K	390K	TP	0Ω	0Ω	TOP CAP ‡18Ω
V16	6AX4GT	NC	NC	INF	NC	†120Ω	NC	0Ω	.1Ω	
V17	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡348Ω
V18	5U4GB	NC	¶	NC	19Ω	TP	16Ω	NC	¶	
V19	21ALP4B	0Ω	22K	PIN 6 ‡10K	PIN 10 ‡10K	PIN 11 • 290K	PIN 12 .1Ω			

† MEASURED FROM PIN 8 OF V18.
‡ MEASURED FROM PIN 3 OF V16.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THF ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
NC NO CONNECTION.
TP TIE POINT



TUBE PLACEMENT CHART



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

REMOTE TUNING SCHEMATIC

HOFFMAN MODELS B1191, U, B1201, U, B1211, U, B3241, U, B3251, U, K1191, U, K1211, U, M1191, U, M1201, U, M1211, U, M3241, U, M3251, U, P1201, U, P1211, U, P3241, U, P3251, U, W1201, U, W3251, U (Ch. 329, U, 330)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	JAN	TYPE	NOTES
V1	RF Amplifier	6BN4	
V2	Mixer-oscillator	6CB6	
V3	1st Video IF Amp	6BZ6	
V4	2nd Video IF Amp	6BZ6	
V5	3rd Video IF Amp - Video Det - AGC Rect	6U8	
V8	Video Output	12BY7	
V7	Sound IF Amp.	6AU6	
V6	Audio Detector	6QT6	
V9	Audio Output	6V6GT	

ITEM No	USE	TYPE	NOTES
V10	Sync Sep -Sync Phase Inv	12AL7	
V11	Vert Mult	6QT	
V12	Vert Output	6W6GT	
V13	Horiz AFC	6AL5	
V14	Horiz Mult	6UG7	
V15	Horiz Output	6CU6GT	
V16	Damper	6AX4GT	
V17	HV Rectifier	1B3GT	
V18	LV Rectifier	5U4GB	

PICTURE TUBE

ITEM No	REPLACEMENT DATA			NOTES
	HOFFMAN PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V19	21ALP4B	21ALP4B/ 21ALP4A ①	21ALP4B ②	① Aluminized ② Silver screen "86"

ELECTROLYTIC CAPACITORS

ITEM No	RATING CAP	VOLT	REPLACEMENT DATA HOFFMAN PART No	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No
C1A	40	350	856905	AF113-458-50	BR113-50	FP247	TC30	U-912 MT-0504	R2465 *
B	40	350							
C	45	350							
C2A	100	350	855903	AF24-458-53	CO230 BR305	FP356	TC39	U-110 MT-0150	R2403 *
B	20	350							
C	150	50							

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP	VOLT	REPLACEMENT DATA HOFFMAN Part No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	470		851122		DD-471	L10T47	ED-470			10%
C4	470		851122		DD-471	L10T47	ED-470			10%
C5	470		851122		DD-471	L10T47	ED-470			10%
C6	1000		850308	BPD-001	DD-102	BYA8DX	ED-1000	DC521	SHK-DX	
C7	2.2		854035	NPO-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		STCCB-V22	10%
C8	47			NPO-SI 47	TCZ-470	C10Q47C	TCO-47	ZT-5447	STCC-Q47	NPO
C9	470		851122		DD-471	L10T47	ED-470			10%
C10	470		851122		DD-471	L10T47	ED-470			10%
C11	1000		850308	BPD-001	DD-102	BYA8DX	ED-1000	DC521	SHK-DX	
C12	33			NPO-SI 47	TCZ-33	C10Q33C	TCO-33	ZT-5453	STCC-Q33	NPO
C13	1000		850308	BPD-001	DD-102	BYA8DX	ED-1000	DC521	SHK-DX	
C14	330		850307		DD-331	L10T33	ED-330			10%
C15	1000		850308	BPD-001	DD-102	BYA8DX	ED-1000	DC521	SHK-DX	
C16	1000		850308	BPD-001	DD-102	BYA8DX	ED-1000	DC521	SHK-DX	
C17	10		856043	BPD-SI 10	DD-100	L20Q	ED-10	ZT-5441	STCC-Q1	10%
C18	4.7		854039	NPO-SI 4.7	TCZ-4R7	C10V47C	TCO-4.7	ZT-5447	STCC-V47	10%
C19	1	300	856175					GEM-301		10%
C20	22	300	856179					GEM-301S28		10%
C21	47		854051	NPO-SI 47	DD-470	L20Q47	ED-47	ZT-5447	STCC-Q47	10%
C22	4700		856310							10%
C23	1000		850308	BPD-001	DD-102	BYA8DX	ED-1000	DC521	SHK-DX	
C24	1	600	856175					GEM-601		10%
C25	.047	300	856171							10%
C26	2.2		854035	NPO-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		STCCB-V22	10%
C27	47		854051	NPO-SI 47	DD-470	L20Q47	ED-47	ZT-5447	STCC-Q47	10%
C28	47		854051	NPO-SI 47	DD-470	L20Q47	ED-47	ZT-5447	STCC-Q47	10%
C29	4700		856310							10%
C30	4700		856310							10%
C31	18		854048		DD-180	L20Q18	ED-18			10%
C32	.047	300	856171							10%
C33	1000		850308	BPD-001	DD-102	BYA8DX	ED-1000	DC521	SHK-DX	
C34	470		851123		DD-471	L10T47	ED-470			10%
C35	10000		856323							10%
C36	10000		856323							10%
C37	.0022	600	856255							10%
C38	220		852039		DD-221	L10T22	ED-220			10%
C39	47		854051	NPO-SI 47	DD-470	L20Q47	ED-47	ZT-5447	STCC-Q47	10%
C40	.0047	300	856159							10%
C41	.0039	300	856158							10%
C42	.047	300	856171							10%
C43	1	600	856175					GEM-601		10%
C44	1	600	856175					GEM-301		10%
C45	1	600	856175					GEM-401		10%
C46	1	600	856175					GEM-601		10%
C47	.001	300	856151							10%
C48	.001	300	856151							10%
C49	.0047	300	856159							10%
C50	.047	200	856171							10%
C51	100		854055	1469-001		22RST1			MS-31	10%
C52	3900		856356	1464-0029		1R5C29			MS-329	10%
C53	470		851133	1464-00047		5RST47			MS-347	10%
C54	330		852307	1469-00033		5RST33			MS-333	10%
C55	.001	600	856251							10%
C56	1	600	856175					GEM-601		10%
C57	.047	600	856171							10%
C58	82	3000	850503							10%
C59	82	3000	850503							10%
C60	82	3000								
C61	1	600	856175					GEM-601		10%
C62	.047	600	856171							10%
C63	1.1	600	856175					GEM-601		10%

CONTROLS

ITEM No	RESISTANCE	WATTS	REPLACEMENT DATA HOFFMAN Part No.	CENTRALAB Part No.	CLAROSTAT Part No.	IRC Part No.	MALLORY Part No	INSTALLATION NOTES
R1A	500Ω	1	803031	F1-4			UE42S	Contrast
B	500K			R2-40			Not Req.	Volume
C	Switch			EB-1			Not Req.	
R2A	1 25Meg	1	803032	F1-44			UE170S	Vert. Hold
B	150K			R2-33			Not Req.	Brightness
C	Switch			EB-1			Not Req.	Sync Lock
R3A	2Meg	3	800015	SK-75	A47-32Meg-S	Q11-139	TA28L	Height
B	Shaft			Not Req.	FS2-1/4		Not Req.	
R4	2000Ω	2	806002		A47-4Meg-S		FL-2.5K	Vert. Lin. -Wire wound
R5A	4Meg	1	800013	AB-96	A47-4Meg-S			Area
B	Shaft			AE-1	FS2-1/4			

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	WATT	REPLACEMENT DATA HOFFMAN Part No.	IRC Part No.	NOTES
R6	470Ω		814182	BTS-470	
R7	47K		814212		
R8	470Ω		814188	BTS-470	
R9	470Ω		814188	BTS-470	
R10	470Ω		814189	BTS-470	
R11	47Ω		814176	BTS-47	
R12	22K		814208		
R13	470Ω		814188	BTS-470	
R14	470Ω		814188	BTS-470	
R15	47Ω		814176	BTS-47	
R16	470Ω		814188	BTS-470	
R17	180Ω		814183	BTS-180	
R18	22K		814208		
R19	12K		814209	BTS-12K	
R20	2 2Meg		814323	BTS-2.2Meg	
R21	330K		814233	BTS-330K	
R22	1 5Meg		814230	BTS-1.5Meg	
R23	8 2Meg		814319	BTS-8.2Meg	
R24	470K		814224	BTS-470K	
R25	4700Ω		814300		
R26	4700Ω	4	814493		
R27	390Ω		814187	BTS-390	
R28	15K		814206	BTS-15K	
R29	100K		814216	BTS-100K	
R30	39K		814211	BTS-39K	
R31	5600Ω	1	815303	BTS-5600	
R32	12K		814205	BTS-12K	
R33	820K		814227	BTS-820K	
R34	100K		814216	BTS-100K	
R35	560K		814235	BTS-560K	
R36	930Ω		814191	BTS-930	
R37	270Ω		814185	BTS-270	
R38	330K		814233	BTS-330K	
R39	2.2Meg		814323	BTS-2.2Meg	
R40	470K		814224	BTS-470K	
R41	470K		814224	BTS-470K	
R42	2200Ω	1	815203	BTA-2200	
R43	2200Ω 5%	1	815071	BTA-2200 5%	
R44	1800Ω		814196	BTS-1800	
R45	2200Ω 5%	1	815071	BTA-2200 5%	
R46	470Ω		814188	BTS-470	
R47	6.7Meg		814246	BTS-6.7Meg	
R48	180K	2	814219	BTS-180K	
R49	100KΩ 5%		814063	BTS-1000 5%	
R50	1.2Meg		814238	BTS-1.2Meg	
R51	680K	1	814233		
R52	5600Ω		814251		
R53	100Ω		814280	BTS-100	
R54	470Ω	1	815296	BTA-470	
R55	560Ω		814189		
R56	560Ω		814189		
R57	33K		814208	BTS-33K	
R58	10K		814214	BTS-10K	
R59	270K		814232	BTS-270K	
R60	15Ω	1	814177	BTA-15	
R61	100K		814216	BTA-100K	
R62	100K		814216	BTS-100K	
R63	470K		814224	BTS-470K	
R64	6.7Meg		814236	BTS-6.7Meg	
R65	6800Ω		814302		
R66	15000 5%		814057	BTS-1500 5%	
R67	100K		814216		
R68	33K		814208		
R69	5600Ω		814301	BTS-5600	
R70	390K		814223	BTS-390K	
R71	1K	2	815305	BTS-1K	
R72	1000Ω	2	814192	BTS-1000	
R73	2.2Ω		815188	BTS-2.2	
R74	4700Ω		814300		
R75	1800Ω	10	825348		
R76	2500Ω	10	825444	PW10-2500	
R77	330K		814222	BTS-330K	

TRANSFORMER (POWER)

ITEM No	RATING PRI.	SEC. 1	SEC. 2	SEC. 3	REPLACEMENT DATA HOFFMAN Part No.	Halderson Part No.	Merit Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No
T1	117VAC	580VCT	5V	6 3V	T16006		P-3055 ①	P-8334 ②	26R92 ①	R-66BC
	& 1 8A	& 285A	& 3A	& 9A						

1. Tape 6 3V & 4 8A and 6.3V & 1 2A windings.
2. Tape 6 4V & 1.8A winding.
3. Tape 5 3V & 4.3A winding.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA HOFFMAN Part No	Halderson Part No	Merit Part No.	RCA TYPE No	Ram Part No	Stancor Part No	Thordarson Part No.	Triad Part No
T2	Vert. Output	728002	Z1900 ①	A-2823	V307	A-8142 ②	P8877	A-108X
T3A	Yoke-Horiz. (20MH)	790002	DF-607	MDF-92	2350	Y90T19/43	DY-16A	Y-18	Y-41 &
B	(90%-Vert. (30.5MH)		③ ④ ⑤	③ ⑤	③ ⑤	③ ⑤	③ ⑤	③ ⑤	NW4 ③ ⑤
M2	Rear Cover & Centering Device	964002							
T4	Horiz. Output	782002	FB49 *	HVO-36 *	2357 *	X094 *	HO-256 *	FLY-16 *	D-95 *
T5	Width Coil (8.7-17MH)	778002	RF800 ⑥ ⑦	MWC-11	2128R	20LR16	WC-5 ③ ⑤	WC-18 ③	WLC-8

① Use 8 to 1 turns ratio.
② Drill new mounting hole(s).
③ Connect horizontal sweep across terminals #3 and #7.
④ Use original horizontal network, if necessary.
⑤ Use original rear cover and centering device.
⑥ Enlarge mounting holes.
⑦ Use terminals #1 and #2.
⑧ Use red and blue terminals.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halderson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
8	9	9	9	9	9	8	5
7	7	7	7	7	7	7	4
6	5	5	5	5	5	3	3
3	3	3	3	3	3	2	2
2	1	1	1	1	1	1	1
Connect Width Coil Across	2 & 3	1 & 3	1 & 3	1 & 3	1 & 3	1 & 3	1 & 2

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC	REPLACEMENT DATA HOFFMAN Part No.	Halderson Part No.	Merit Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No	NOTES
T6	7500Ω	3-4Ω	724003	Z1115	A-2321	A-3878	24S23	S-7X	

SPEAKER

ITEM No	TYPE SIZE	FIELD	V C VMP	REPLACEMENT DATA HOFFMAN Part No.	QUAM Part No.	NOTES
SP1	6" x 9"	PM	3-4Ω	708903 ①	6A2I	① Used in Models B1241, U, M1241, U, P1241, U
	10"	PM	3-4Ω	708804 ②	10A2I	② Used in Models B1251, U, M1251, U, P1251, U,
	4"	PM	3-4Ω	708003 ②	4A2T	W1251, U
						③ Used in Models B1181, U, K1181, U, M1181, U, P1181, U, W1181, U, B1211, U, K1211, U, M1211, U, P1211, U

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA HOFFMAN Part No.	MEISSNER Part No.	MERIT Part No.	MILLER Part No.	NOTES
L1	1st. Video IF	782006	17-4854	TV-131	6236	
L2	2nd. Video IF	782008	17-4855		6235	Includes 41.25MC Trap
L3	3rd. Video IF	782007	17-4856		6233	Includes 47.25MC Trap
L4	4th. Video IF	782004	17-5004	TV-126	6234	
L5	Series Peaking Coil	771008	19-5100	TV-121	6177	100 Microhenries
L6	Shunt Peaking Coil	772519		TV-207	6156	820 Microhenries
L7	4.5MC Trap	783005	20-1004	TV-151	1469 *	
L8	Series Peaking Coil	771014	19-5200	TV-180	6125	330 Microhenries
L9	1st. Sound IF	782006	20-1004	TV-151	1469 *	
L10	2nd. Sound IF	780008	17-3496	TV-113	6203	
L11	Quadrature Coil	774001	20-1007	TV-121	1490	

* Disregard Tap.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	SEC.	REPLACEMENT DATA HOFFMAN Part No.	MEISSNER Part No.	MERIT Part No.	MILLER Part No.	RCA TYPE No.	Ram Part No.	Thordarson Part No.	NOTES
L12	95Ω		789004	19-1578	TV-163	6210		H-102	28S-5	20.5-45 Millihenries

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	HOFFMAN Part No	REPLACEMENT DATA	
K1	Vert. Integrator	2200MMF, 4700MMF, 4700MMF, 22K, 820Ω, 820Ω,	986001	Aerovox	PA-110
				Centralab	PC-100
				Cornell-Dubilier	1137M5
				Erie	1405-01
				Sprague	Y-4

MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN Part No.	NOTES
M1	Tuner	T10001	VHF - Ch. 2-39
	Tuner	T10001	VHF - Ch. 2-13
	Tuner	T12002	UHF/VHF - Ch. 14-25U
M2	Centering Device	964002	Includes yoke cover
M3	Ion Trap	970001	

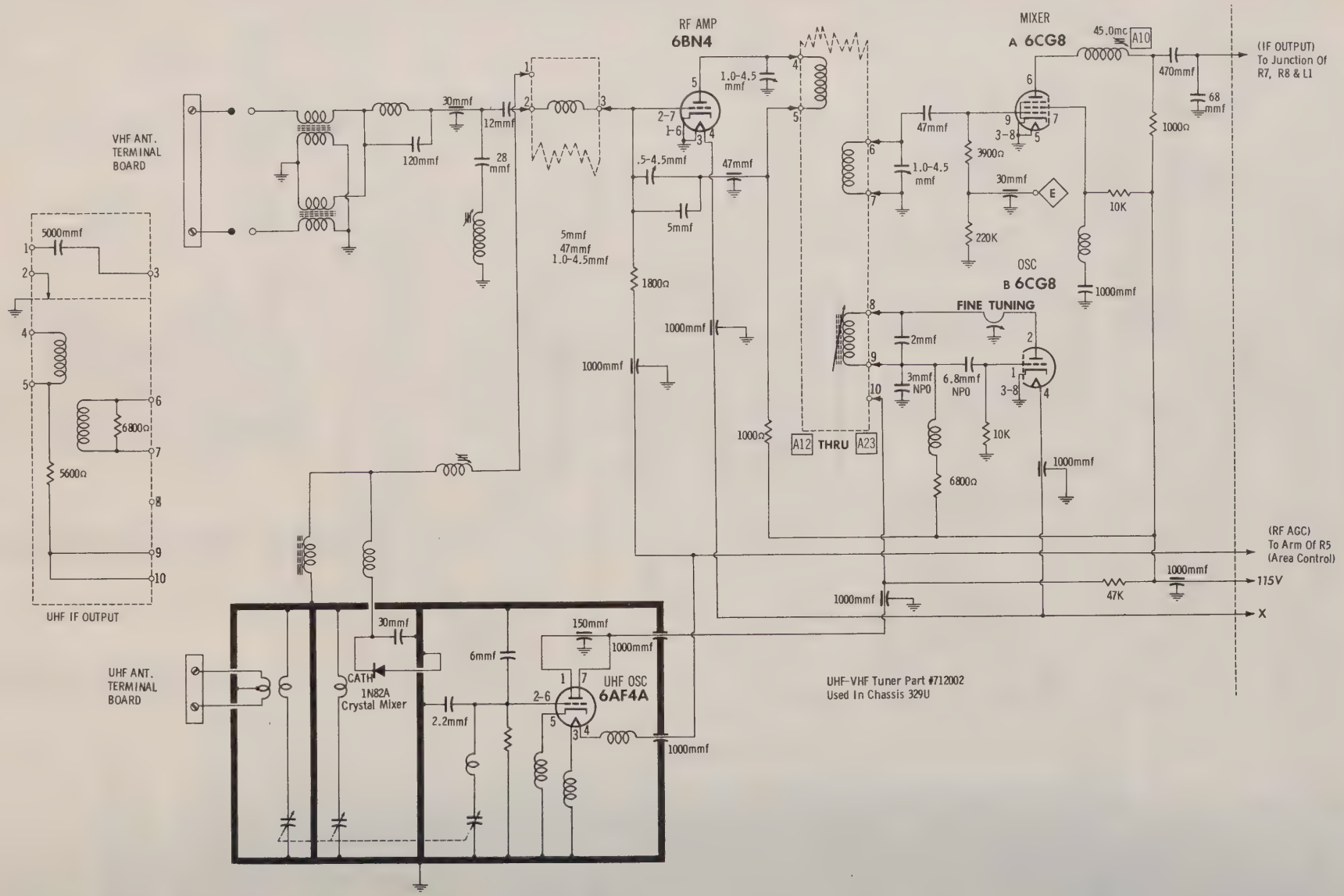
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	432001	
Mask	402001	VHF Models
Escutcheon	452002	UHF/VHF Models
Escutcheon	452005	VHF Channel Selector -Models B1241, U, M1241, U, P1241, U, B1211, U, K1211, U, M1211, U, P1211, U, B1181, U, K1181, U, M1181, U
Knob	478001	
Knob	506004	VHF Pushbutton-Channel Selector - Models B1201, M1201, P1201, W1201, B2251, M2251, P2251, W2251
Knob	500005	Fine Tuning - VHF Models
Knob	480030	UHF 1st. Section - UHF Models
Knob	480013	UHF 2nd. Section - UHF Models
Knob	480037	Fine Tuning - UHF Models
Knob	512004	Contrast & Vertical Hold
Knob	500016	On.-off-volume & Brightness
Cabinet	352002	Oak - Models B1241, U
Cabinet	348006	Oak - Models B1181, U
Cabinet	346009	Oak - Models B1201, U
Cabinet	346003	Oak - Models B1211, U
Cabinet	352005	Oak - Models B2251, U
Cabinet	353001	Mahogany - Models M1241, U
Cabinet	348005	Mahogany - Models M1181, U
Cabinet	346008	Mahogany - Models M1201, U
Cabinet	346013	Mahogany - Models M1211, U
Cabinet	352004	Mahogany - Models M2251, U
Cabinet	352005	Provincial - Models P2241, U
Cabinet	346010	Provincial - Models P1201, U
Cabinet	346004	Provincial - Models P1211, U
Cabinet	352006	Provincial - Models P2251, U
Cabinet	346007	Walnut - Models W1201, U
Cabinet	352013	Walnut - Models W2251, U
Cabinet	346004	Black - Models K1181, U
Cabinet	344001	Black - Models K1211, U

HOFFMAN MODELS B1201, U, B1201 U, B1211 U, B2241, U, B2251, U, K1197, U, K1211, U, M1197, U, M1201, U, M1211, U, M2241, U, M2251, U, P1201, U, P1211, U, P2241, U, P2251, U, W1201, U, W2251, U (Ch. 329, U, 330)

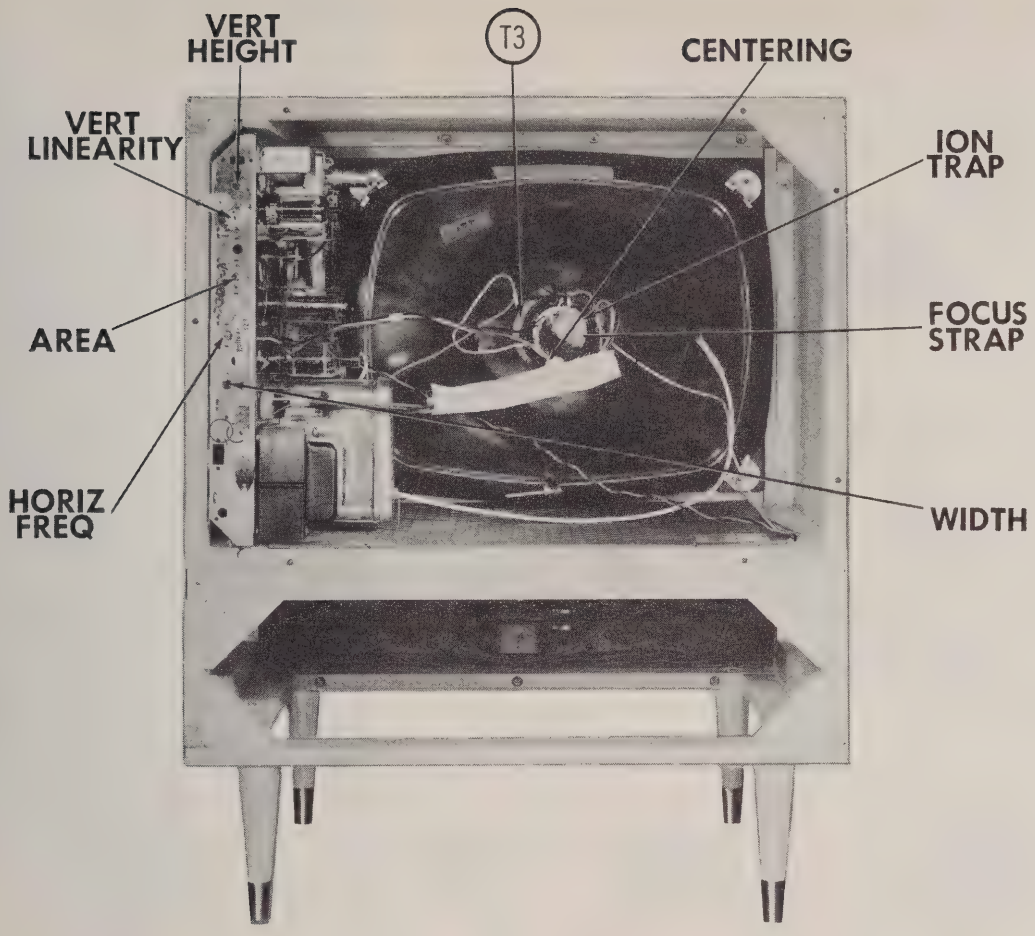
FOLDER 4



UHF-VHF Tuner Part #712002
Used In Chassis 329U

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

ALTERNATE TUNER SCHEMATIC



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

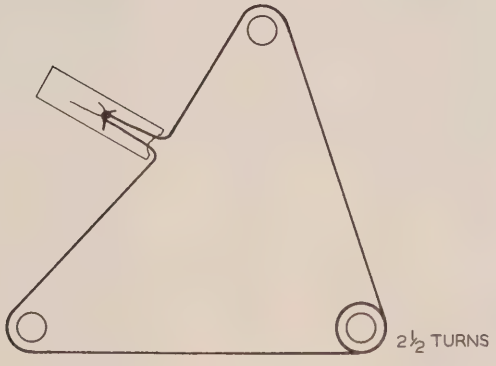
Turn the set on and tune in a TV station, preferably with a test pattern.

Set the brightness and contrast controls for a normal picture.

Turn the horizontal hold clockwise until the picture loses sync.

It may be necessary to switch off channel and back again for picture to lose sync.

Turn the horizontal hold slowly counter clockwise until the picture just falls into sync.



FINE TUNING DRIVE CORD STRINGING

FOLDER 4

PHOTOFACT* Folder

*TRADE MARK

RETMA MEMBER

TRUETONE MODELS 2D3770A, B

PROPERTY OF
L. F. BLANKENSHIP
3934 MEADE ST.
DENVER, COLORADO

TRUETONE MODELS
2D3770A, B

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PHOTOFACT* Folder

*TRADE MARK

TRUETONE MODELS 2D3770A, B

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 5 push-on type control knobs.
2. Remove 4 metal screws and swing rear cover up over the top.
3. Remove 2 antenna leads.
4. Remove the center bolt from the handle.
5. Remove 3 chassis bolts and the 2 rear feet from the bottom.
6. Remove the chassis.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

TRADE NAME	Truetone Models 2D3770A, 2D3770B
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	Television Receiver
TUBES	Thirteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 115 Watts, 1.14 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. One slug for HIGH band adjustment is located at 11 o'clock, and should be adjusted first. The LOW band adjustment is located at 3 o'clock. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 3 metal screws holding the handle. Remove 2 metal screws from the bottom front edge of the cabinet. Remove the front and safety glass.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 10 or 6 and 2. Readjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location see tube placement chart).

FUSES

A 4.7Ω fusible resistor (R68) is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

TRUETONE MODELS 2D3770A, B

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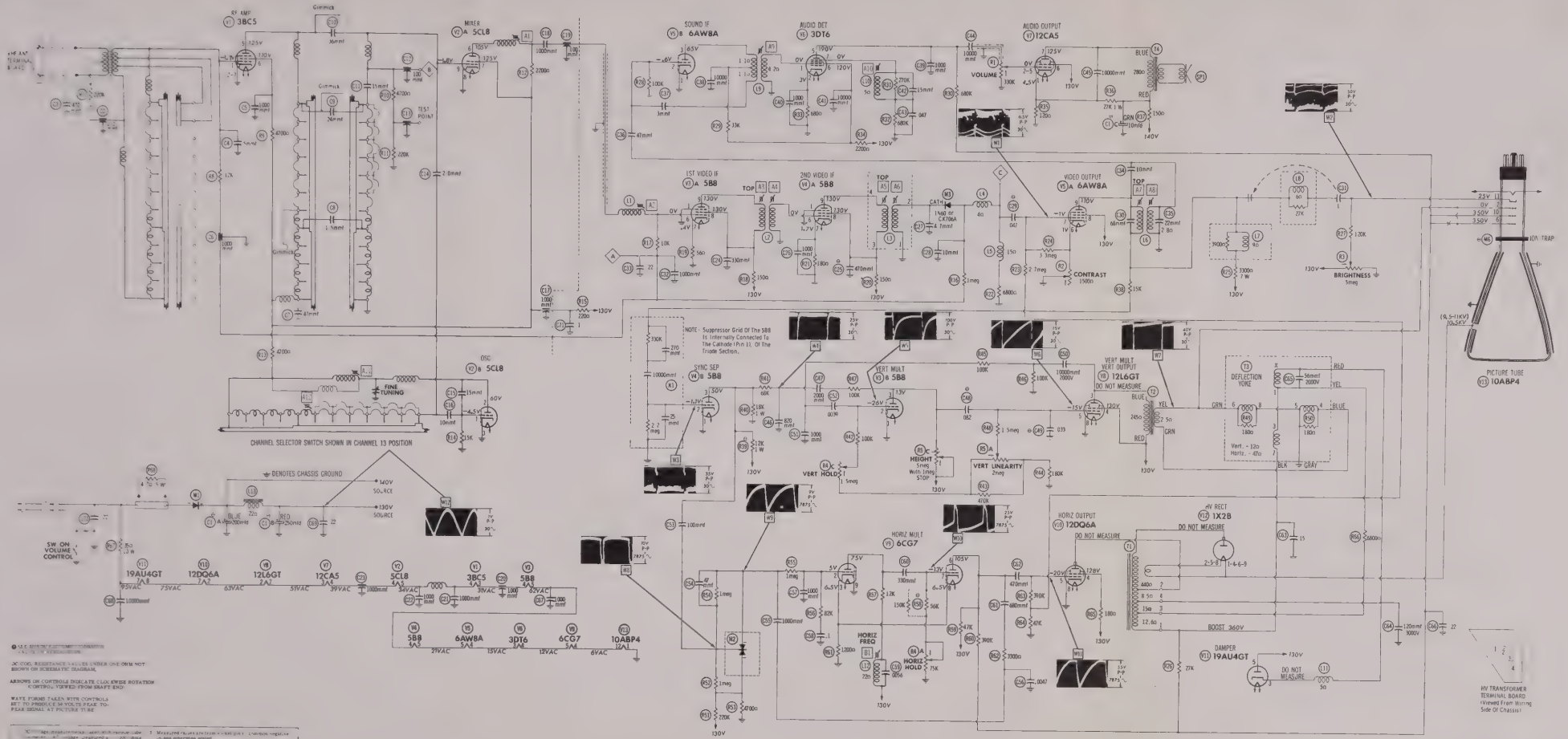

TRUETONE MODELS 2D3770A, B

TUBE PLACEMENT CHART

PROPERTY OF
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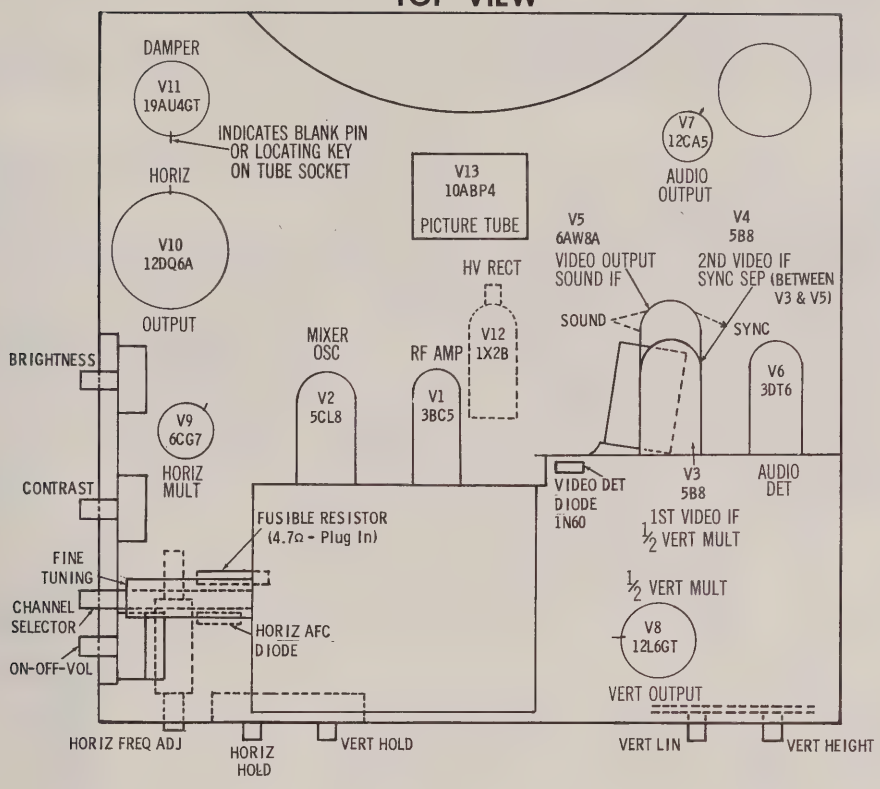
TOP VIEW



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

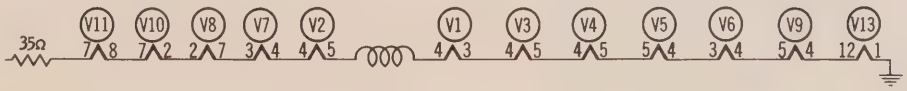
POWER SUPPLY FAILURE
No raster, no sound - Fusible Resistor (R68), Rectifier (M1)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V3, V4, Diode (M3), V5
No pic, no sound, has snow - V1, V2
No pic, has sound, has raster - V5, V13
Has pic, no sound - V5, V6, V7

SYNC FAILURE
No vert. sync - V3, V4, V8
No horiz. sync - V4, Diode (M2), V9
No vert. or horiz. sync - V4

SWEEP FAILURE
No raster, has sound - M2, V9, V10, V11, V12, V13
No vertical deflection - V3, V8
Poor vert. linearity or foldover - V3, V8
Poor horiz. linearity or foldover - V9, V10, V11
Narrow picture - V9, V10, V11, M1
Vert. off freq. - V3, V4, V8
Horiz. off freq. - V4, M2, V9

Since this receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below.)



ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use an isolation transformer to protect the test equipment.
The high voltage lead should be securely taped and kept away from the chassis.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias battery to point (A). Positive to chassis.
Disable oscillator by replacing Mixer-Osc. tube 5CL8 (V2) with a 5CL8 with pin 1 removed.
Short the antenna terminals.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	1000MMF ceramic capacitor	High side to point (B). Low side to chassis.	44.0MC (10MC Swp)	42.75MC 45.75MC	Any channel.	Vert. amp. thru detector (Fig. 1) to plate, pin 9 of 5B8 (V3). Low side to chassis.	A1, A2	Adjust for response similar to Fig. 2 with markers in proper positions.
2.	"	High side to pin 6 (grid) of 5B8 (V3). Low side to chassis.	"	"	"	Vert. amp. thru detector (Fig. 1) to plate, pin 9 of 5B8 (V4). Low side to chassis.	A3, A4	"
3.	"	High side to pin 6 (grid) of 5B8 (V4). Low side to chassis.	"	"	"	Vert. amp. to point (C). Low side to chassis.	A5, A6	"
4.	"	High side to point B. Low side to chassis.	"	"	"	"		Retouch A1 thru A6 as needed to correct for curve similar to Fig. 3. Remove bias and replace 5CL8 (V2).

SOUND IF ALIGNMENT

Set the contrast control fully clockwise. Set volume control at midrange.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	1000MMF ceramic capacitor	High side to point (C). Low side to chassis.	Not used.	4.5MC (400∿ 30% AM Mod)	Any non-interfering channel.	Vert. amp. thru detector (Fig. 4) to pin 11 (cathode) of picture tube. Low side to chassis.	A7, A8	Turn A7 fully counter clockwise. Turn A8 fully clockwise. Turn A7 clockwise for MINIMUM 400∿ indication on scope.
6.	"	"	4.5MC (15KC Swp)	Not used.	"	Across secondary of output transformer.	A8, A9, A10	Use only enough sweep generator output to provide usable pattern on scope. Turn A10 fully counter clockwise. Adjust A8, A9 and A10 for maximum indication on scope. Remove test equipment and tune in a TV station. Retouch A10 for MINIMUM buzz.

OSCILLATOR ALIGNMENT

Turn the set on and tune in the highest band channel (7-13) operating in the area and adjust A11 for clearest picture and best sound. A11 is located to the left and SLIGHTLY above the tuning shaft. Switch the channel selector to the highest low band channel (2-6) operating in the area and adjust A12 for clearest sound and best picture. A12 is located directly to the right of the tuner shaft.

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

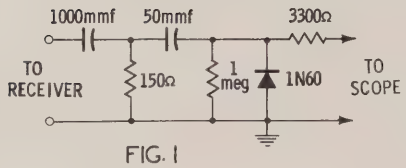


FIG. 1

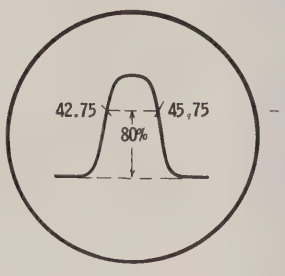


FIG. 2

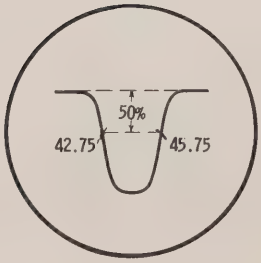


FIG. 3

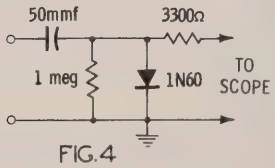


FIG. 4

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CHASSIS TOP VIEW

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amp. Mixer-Osc	3BC5	
V2	1st Video IF - Vert. Mult.	6CL6	
V3	2nd Video IF - Sync Sep.	6S8	
V4	Video Output-Sound IF	6AW8A	
V5	Audio Det.	3DT6	
V7	Audio Output	12CA5	
V8	Vert. Mult. - Vert. Output	12L6GT	
V9	Horiz. Mult.	6CM7	
V10	Horiz. Output	12BN6A	
V11	Damper	1N41/4GT	
V12	HV Rectifier	1X2B	

PICTURE TUBE

ITEM No	REPLACEMENT DATA			NOTES
	TRUETONE PART No	GENERAL ELECTRIC PART No	SYLVANIA PART No	
V13	10ABP4		10ABP4B	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT	TRUETONE PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	200	150	45A392	PRS-023		WT230	CDBT-1015	D-096 MT-1510	R3294 *
B	250	150							
C	10	150							

* Non-catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	8.0									
C3	470		47A836	BPD-00047	DD-471	BYA107-47	ED-470	UC-5347	5GA-T47	
C4	6			MPD-61 5	TCE-4RT	C10V5C	TCO-5		5TCCB-V5	
C5	1000		47-303	BPD-001	DD-103	BYA3D1	ED-1000	DC53	5HK-D1	
C6	1000			EF-001	MFT-1000				503C-D1	
C7	47		47CA30A470M	BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C8	5			MPD-61 5	TCE-1R5	C10V15C	TCO-1.5		5TCCB-V15	
C9	.34									
C10	.16									
C11	18			BPD-000015	DD-180	L18Q15	ED-15	UC-5416	5GA-Q15	
C13										
C13	100			MPD-61 2	TCZ-2.2	C10V2C	TCO-2			
C14	2.0									
C15	18			MPD-61 10	TCE-18	C10Q1C	TCO-10	ET-561	5TCC-Q1	N1000
C16	10			EF-001	MFT-1000				503C-D1	
C17	1000			BPD-001	DD-103	BYA3D1	ED-1000	DC53	5HK-D1	
C18	1000		47-303							
C19	100									
C20	1000			EF-001	MFT-1000				503C-D1	
C21	1000		47-303	BPD-001	DD-103	BYA3D1	ED-1000	DC53	5HK-D1	
C22	1000		47-303	BPD-001	DD-103	BYA3D1	ED-1000	DC53	5HK-D1	
C23	1000			EF-001	MFT-1000				503C-D1	
C24	330		47A841	BPD-00033	DD-331	C10T33	ED-330	UC-5333	5GA-T33	
C25	470		47A843	BPD-00047	DD-471	BYA107-47	ED-470	UC-5347	5GA-T47	
C26	1000		47A330	BPD-001	DD-103	BYA3D1	ED-1000	DC53	5HK-D1	
C27	6.7		47B603-6	MPD-61 6.7	TCE-6RT	C10V6TC	TCO-6.7	ET-555	5TCCB-V67	
C28	10		47CA30A100K	SI 10	DS-100	LT6Q1	GP-10	UC-541	5GA-Q1	
C29	.047	150	46DM15-473M3	PSSDH-047	DF-503	CUBS247		GEM-4147	5TM-S47	NY5
C30	68		47-635							
C31	1	300	46D616-104M2	PSSDH-1	DF-104	CUBS2P1		GEM-301	5TM-P1	
C32	1000		47A330	BPD-001	DD-103	BYA3D1	ED-1000	DC53	5HK-D1	
C33	.22	100	46D616-224M1	PSSDH-22		CUBS2P22		GEM-3223	5TM-P22	
C34	10		47A30-11	SI 10	DS-100	L7Q1	GP-10	UC-541	5GA-Q1	
C35	33		47-634							NY5
C36	47		47CA30A470M	SI 47	DS-470	LT6Q47	GP-47	UC-5447	5GA-Q47	
C37	3		47A807	SI 3	DS-030	LT8Y3	TCO-3	ET-553		
C38	10000		47A334	BPD-01	DD-103	BYA3E1	ED-01	DC511	5HK-E1	
C39	1000		47A330	BPD-001	DD-103	BYA3D1	ED-1000	DC53	5HK-D1	
C40	1000		47A330	BPD-001	DD-103	BYA3D1	ED-1000	DC53	5HK-D1	
C41	10000		47A334	BPD-01	DD-103	BYA3E1	ED-01	DC511	5HK-E1	
C42	15		47B480							NO80
C43	.047	300	46D616-473M2	BPD-05	DF-503	CUBS247		GEM-3147	5TM-S47	
C44	10000		47A334	BPD-01	DD-103	BYA6E1	ED-01	DC511	5HK-S1	
C45	10000		47A334	BPD-01	DD-103	BYA6E1	ED-01	DC511	5HK-S1	
C46	1.0		47-606	BPD-0010	DE-105	L10T2S2		ED-850	5GA-T1S2	
C47	3000		47A396	BPD-003	DD-303	BYA10D2	ED-003	DC533	5HK-D2	
C48	.003	300								
C49	.033	300		PSSDH-033	DF-303	CUBS333		GEM-4133	5TM-S33	
C50	10000	3000	47-708					GEM-3101	EL-610	
C51	.033	300	47-503	BPD-001	DD-103	BYA6D1	ED-001	DC531	5HK-D1	
C52	.0039	300	46BR392K	BPD-004	DE-403	CUBSD39	GP-4000	GEM-634	5TM-D4	
C53	47		47CA30A47M	SI 100	DS-470	L7T1	GP-100	UC-531	5GA-T1	
C54	47		47CA30A47KM	SI 47	DS-470	LT6Q47	GP-47	UC-5447	5GA-Q47	
C55	1000		47A566	BPD-001	DD-103	BYA6D1	ED-1000	DC531	5HK-D1	
C56	.0047	300	46D616-473K3	BPD-0047	DE-473	CUBSD47	GP-4700	GEM-6347	5TM-D47	
C57	1000		47A566	BPD-001	DD-103	BYA6D1	ED-1000	DC531	5HK-D1	
C58	.1	300	46D616-104M3	PSSDH-1	DF-104	CUBS2P1		GEM-301	5TM-P1	
C59	.0068	400	46BR682K	P468N-005	DF-683	CUBSD68	GP-5600	GEM-435	5TM-D5	
C60	330		47X20B33K	1464-00033		5WST33			MS-333	
C61	680		47X20B68K	1464-00068		1WST68			MS-347	
C62	470		47A538	BPD-00047	DD-471	BYA107-47	ED-470	UC-5347	5GA-T47	
C63	.15	600	46D616-154M6	P686N-15		CUB6P15		GEM-6015	5TM-P15	
C64	130	3000	47-640		DD30-131	HV B30T131			30GA-T13	
C65	250	3000	47A537		DD30-56	HVA30Q56	HD3-56	DC30456	30GA-Q56	
C66	.33	600		P468N-33		CUB6P33		GEM-6033	5TM-P22	
C67	1000		47A330	BPD-001	DD-103	BYA6D1	ED-1000	DC531	5HK-D1	
C68	10000		47A334	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C69	.33	300	46D616-334M3	PSSDH-33		CUBS2P33		GEM-3233	5TM-P22	
C70	.33	600	46D616-334M6	P686N-33		CUB6P33		GEM-6033	5TM-P22	
C71	.1	300	46D616-104M3	PSSDH-1	DF-104	CUBS2P1		GEM-301	5TM-P1	

CONTROLS

ITEM No	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	TRUETONE PART No	CENTRALAB PART No	CLAROSTAT PART No	IRC PART No	MALLORY PART No	
R1A	330K	½	25H400	B-60	A47-300K-Z	Q3-122	TA334A	Volume
B	Shaft			Not Req	FS-1	Not Req	Not Req	
C	Switch			KB-1	SWR-12	TS-1	US-26	
R2A	15000	½	25H399	AB-518		Q7-109	US	Contrast
B	Shaft			AK-3		Not Req	Not Req.	
R3A	5Meg	½	25H401	AB-58		Q7-141	TA56R	Brightness
B	Shaft			AK-3		Not Req.	Not Req.	
R4A	75K	½	25H403	AB-35	A47-75K-S	Q11-125	PTA15L	Horiz Hold
B	Shaft			AK-19	RN-3	TQ	Not Req.	
C	1 5Meg	½		AB-742	A47-1 5Meg-S	Q11-130	PTA30L	Vert Hold
D	Shaft			AK-19	RN-3	TQ	Not Req	
R5A	2Meg	½	25H404	AB-78	A47-2Meg-S			Vert. Lin
B	Shaft			AK-19	RN-3			
C	5Meg	½		AB-58	A47-5Meg-S			Height With 1Meg stop
D	Shaft			AK-19 *	RN-3 *			

* Use a 1Meg resistor in series with the right hand terminal.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	TRUETONE PART No	IRC PART No	
R7	220K		23X20X234K	BTS-220K	
R8	12K		23X20X123K	BTS-12K	
R9	4700		23X20X472K	BTS-4700	
R10	4700		23X20X472K	BTS-4700	
R11	220K		23X20X224K	BTS-220K	
R12	22000		23X20X223K	BTS-22G0	
R13	4700		23X20X472K	BTS-4700	
R14	15K		23X20X153K	BTS-15K	
R15	2200		23X20X222K	BTS-220	
R16	1Meg		23X20X105K	BTS-1Meg	
R17	10K		23X20X103K	BTS-10K	
R18	150G		23X20X151K	BTS-150	
R19	56G		23X20X560K	BTS-56	
R20	150G		23X20X151K	BTS-150	
R21	180G		23X20X181K	BTS-180	
R22	6800G		23X20X683K	BTS-6800	
R23	5.7Meg		23X20X575K	BTS-5.7Meg	
R24	3.3Meg		23X20X335K	BTS-3.3Meg	
R25	3500G	T	24A1233	PWT-3500	
R26	27K	1	23X20X273K	BTS-27K	
R27	120K		23X20X124K	BTS-120K	
R28	100K		23X20X104K	BTS-100K	
R29	33K		23X20X333K	BTS-33K	
R30	680K		23X20X684K	BTS-680K	
R31	270K		23X20X274K	BTS-270K	
R32	680K		23X20X684K	BTS-680K	
R33	680G		23X20X681K	BTS-680	
R34	3300G		23X20X332K	BTS-3300	
R35	120G		23X20X121K	BTS-120	
R36	27K	1	23X20X273K	BTA-27K	
R37	150G		23X20X151K	BTS-150	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	TRUETONE PART No	IRC PART No	
R38	15K		23X20X153K	BTS-15K	
R39	12K	1	23X20X123K	BTA-12K	
R40	18K	1	23X20X183K	BTA-18K	
R41	68K		23X20X683K	BTS-68K	
R42	100K		23X20X104K	BTS-100K	
R43	470K		23X20X474K	BTS-470K	
R44	180K		23X20X184K	BTS-180K	
R45	100K		23X20X104K	BTS-100K	
R46	100K		23X20X104K	BTS-100K	
R47	100K		23X20X104K	BTS-100K	
R48	1.5Meg		23X20X155K	BTS-1.5Meg	
R49	180G		23X20X181K		
R50	180G		23X20X181K		
R51	330K		23X20X334K	BTS-330K	
R52	1Meg		23X20X105K	BTS-1Meg	
R53	470KG		23X20X474K	BTS-470K	
R54	1Meg		23X20X105K	BTS-1Meg	
R55	1Meg		23X20X105K	BTS-1Meg	
R56	82K		23X20X823K	BTS-82K	
R57	12K		23X20X123K	BTS-12K	
R58	56K		23X20X563K	BTS-56K	
R59	47K		23X20X473K	BTS-47K	
R60	390K		23X20X394K	BTS-390K	
R61	1200G 5%		23X20X122J	BTS-1200 5%	
R62	3300G		23X20X332K	BTS-3300	
R63	390K		23X20X394K	BTS-390K	
R64	47K		23X20X473K	BTS-47K	
R65	180G		23X20X181K	BTS-180	
R66	6800G		23X20X682K	BTS-6800	
R67	25G	10	34-1066	1 3/4A-35	
R68	4.7Ω	5	34B318		

Note 1 Some versions may use a 75K, 68K, 82K or an 82K paralleled by a 150K in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA				NOTES
		TRUETONE PART No	Halldorson PART No	Merit PART No	RCA TYPE No	
T1	Horiz Output Trans.	55-307				
T2	Vert Output Trans.	55-308	Z1900 1			
T3A	Yoke -Horiz. (24 54MS) (90°) Vert. (1.5MS)	53-396				
M5	Rear Cover & Centering Device	21-286				

① Connect #1 to plate, #2 to screen, #7 to yoke terminal #4, #10 to yoke terminal #6.

SPEAKER

ITEM No	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TRUETONE PART No.	QUAM PART No.	
SP1	3½"	PM	3-4Ω	85C195	3A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		TRUETONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No	
L1	1st Video IF	51-2167				
L2	2nd Video IF	51-2168				
L3	3rd Video IF	50-548				
L4	RF Choke	53A307	19-1006		6684	15 Microhenries
L5	Shunt Peaking Coil	51-2173	19-3680		6148	750 Microhenries
L6A	4. SMC Trap	51B1996				
B	1st Sound IF					
L7	Shunt Peaking Coil	51-2191	19-4400a		6134a	395 Microhenries; Wound on 2900Ω resistor.
L8	Series Peaking Coil	51-2164	19-3160 *		6130 *	160 Microhenries, wound on 27K resistor
L9	2nd Sound IF	51-2186				
L10	Quadrature Coil	51B1857			1480	
L11	RF Choke	53-342				7.5 Microhenries; IRC part #CLA

▲ Parallel with 2900Ω resistor
* Parallel with 27K resistor

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES		REPLACEMENT DATA					NOTES
	PRI	SEC	TRUETONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Halldorson PART No.	
L12			51-3189	19-1875		6310 ①		RS-4	

① Enlarge mounting hole. A 3900MMFD capacitor may have to be used in place of .0056 (C58).

FILTER CHOKE

ITEM No	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D C. RESISTANCE	INDUCTANCE 10 CURRENT 1000 ∿	TRUETONE PART No.	Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No
L13	270 A	2Ω	5 HY	58A251				28C44 ①	C-27X

① Drill new mounting holes.

COMPONENT COMBINATIONS

ITEM No	USE	DESCRIPTION	TRUETONE PART No	REPLACEMENT DATA	
K1	Sync Coupler	270MMF, 25MMF, 10000MMF, 350K, 2.2Meg	49A046	Aerovox Cenbraib Sprague	PA-533 PC-263 ST-3

RECTIFIERS

ITEM No	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	TRUETONE PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No	INTERNATIONAL PART No	SARKES TARZIAN PART No.	
M1	.280A	27C238 ③	1025A ①	1N1007 ③	RS3508L ①	350A ①	① Selenium type ② Germanium type ③ 2 Required
M2		27C234 ③	1025 ① ③		ITT ② ③		

Note 1

CRYSTAL DIODES

ITEM No	ORIG TYPE	REPLACEMENT DATA			NOTES
		TRUETONE PART No.	CBS PART No	SYLVANIA PART No	
M3	1N80	19C1884 *	1N80	1N80	Video Detector (Pigtail)

* Alternate part #19C1980.

MISCELLANEOUS

ITEM No	PART NAME	TRUETONE PART No.	NOTES
M4	Tuner	1-3067	VHF
M5	Centering Device	21-286	Includes yoke rear cover
M6	Ion Trap	21-151	

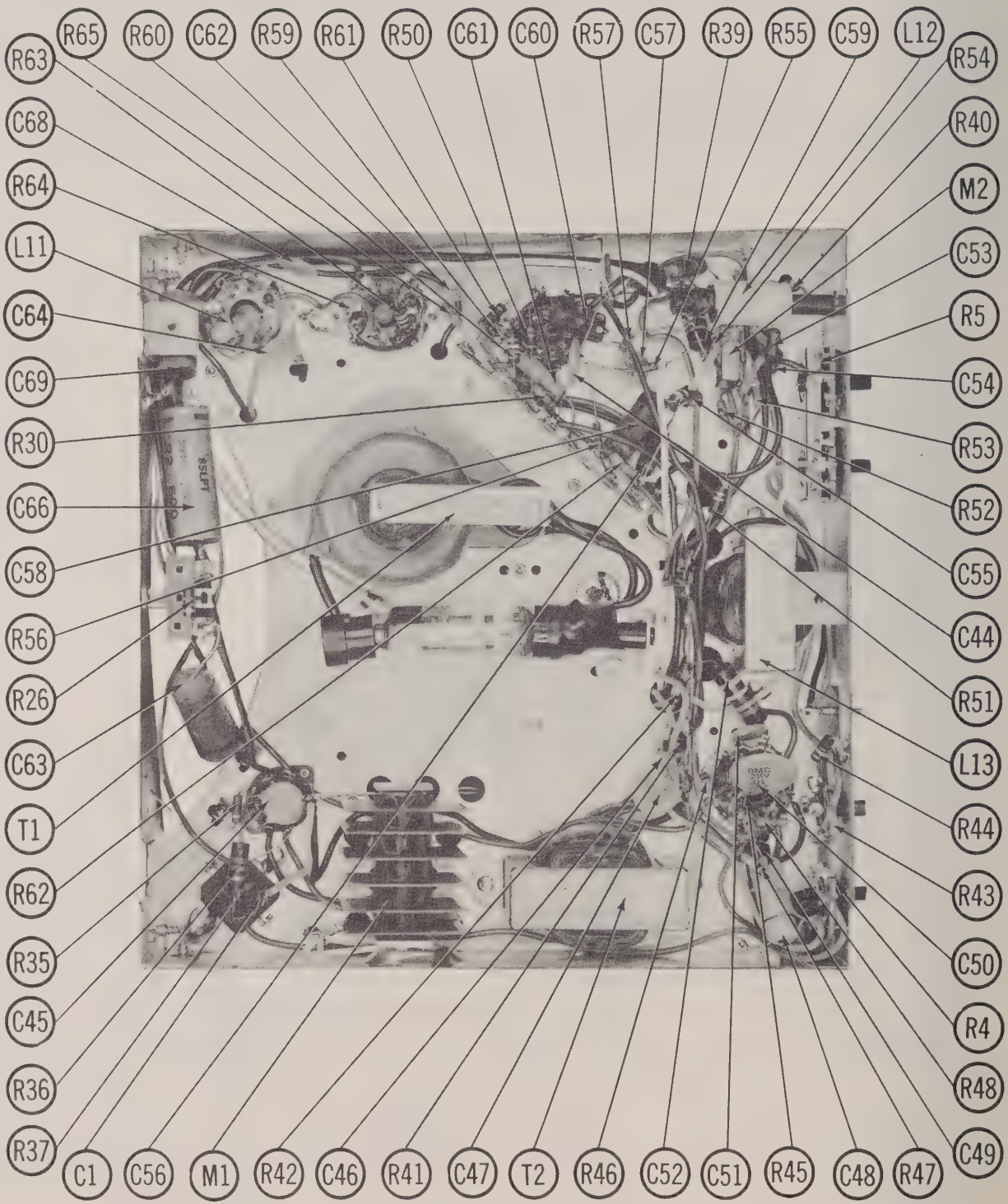
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

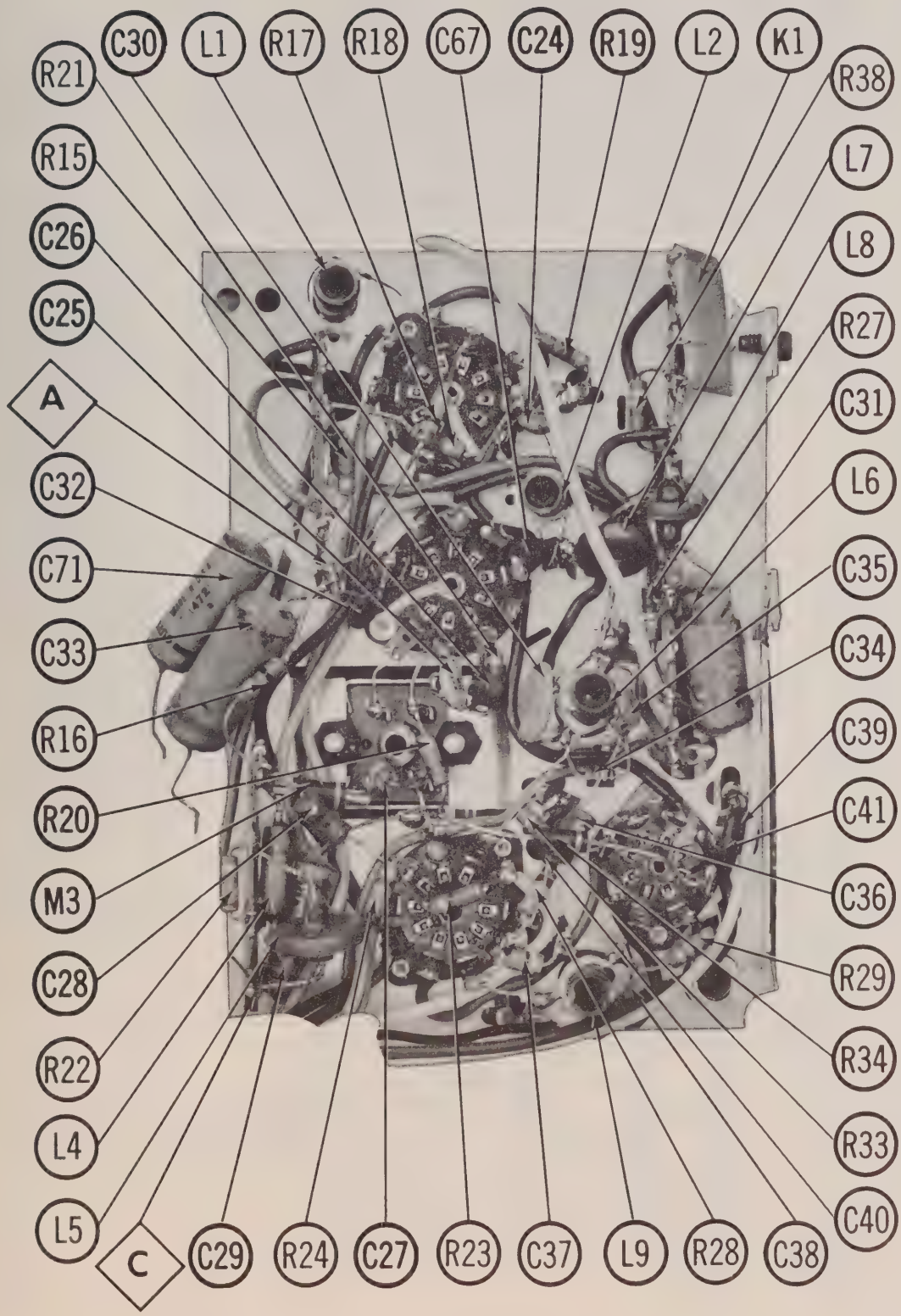
NAME	PART NO	DESCRIPTION
Safety Glass	22D535	
Handle	30-414	
Knob	15A1080	Channel Selector
Knob	15C1038	Fine Tuning
Knob	15B1057	Control (3 used)
Cabinet Front	41-80187	
Cabinet	41-80120	

TRUETONE MODELS 2D3770A, B

FOLDER 5



CHASSIS-BOTTOM VIEW



VERTICAL CHASSIS BOTTOM VIEW

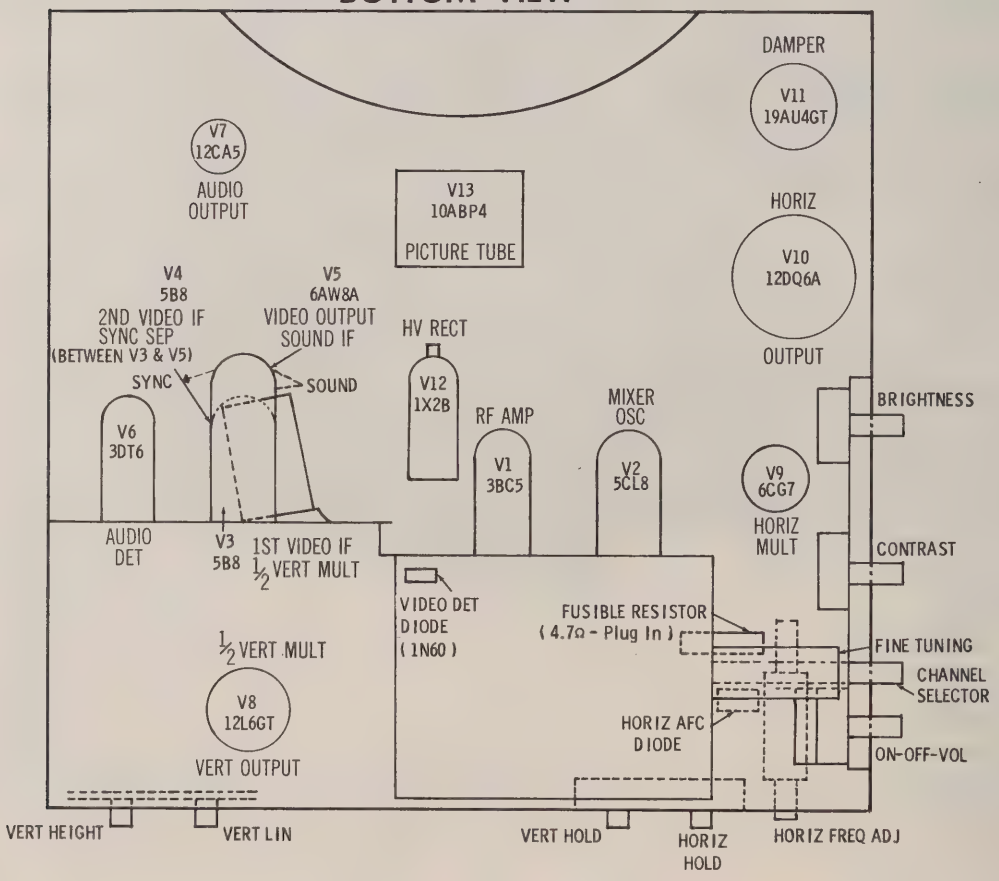
SET 377 FOLDER 5

RESISTANCE MEASUREMENTS

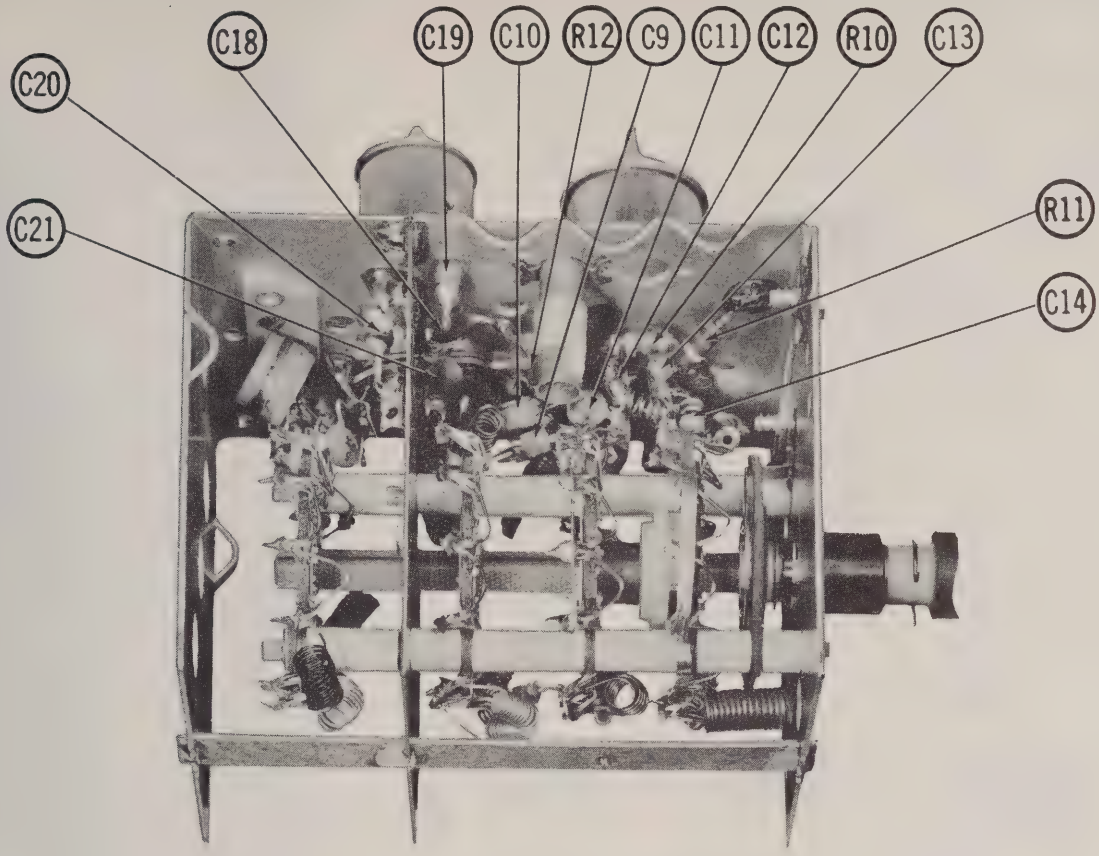
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BC5	1Meg	0Ω	6.5Ω	7Ω	†240Ω	†5000Ω	0Ω		
V2	5CL8	15K	†5000Ω	0Ω	7.5Ω	7Ω	†2400Ω	†240Ω	0Ω	220K
V3	5B8	0Ω	• 1.3Meg	•†2.7Meg	6.5Ω	6.5Ω	1Meg	56Ω	†170Ω	†170Ω
V4	5B8	0Ω	2.2Meg	†12K	5.5Ω	5Ω	0Ω	180Ω	†170Ω	†170Ω
V5	6AW8A	0Ω	100K	†35K	3.5Ω	5Ω	• 10Ω	1.4Meg	†22Ω	†3300Ω
V6	3DT6	4.2Ω	680Ω	†3.5Ω	3Ω	‡700K	†2200Ω	680K		
V7	12CA5	120Ω	270K	9Ω	7.5Ω	270K	†22Ω	†430Ω		
V8	12L6GTB	TP	10.5Ω	†260Ω	†22Ω	•2.3Meg	TP	9Ω	0Ω	
V9	6CG7	†47K	• 75K	1200Ω	1.5Ω	3Ω	†12K	1.8Meg	1200Ω	
V10	12DQ6A	TP	10.5Ω	TP	†200Ω	440K	TP	11.5Ω	0Ω	TOP CAP ‡13Ω
V11	19AU4GT	NC	TP	480K	NC	†22Ω	TP	13Ω	11.5Ω	
V12	1X2B	PINS 1 THRU 9 HAVE INFINITE RESISTANCE								TOP CAP ‡453Ω
V13	10ABP4	0Ω	3Ω	PIN 6 ‡27K	PIN 10 ‡27K	PIN 11 • †120K	PIN 12 1.5Ω			

† MEASURED FROM OUTPUT OF M1.
‡ MEASURED FROM PIN 3 OF V11.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
NC NO CONNECTION
TP TIE POINT

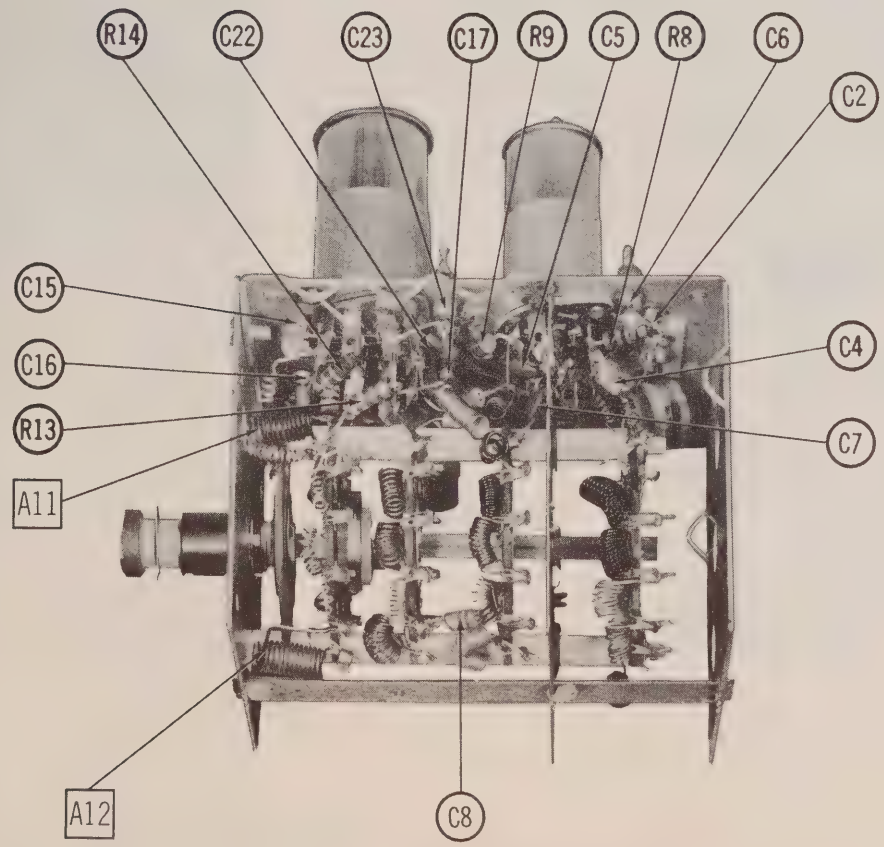
BOTTOM VIEW



TUBE PLACEMENT CHART

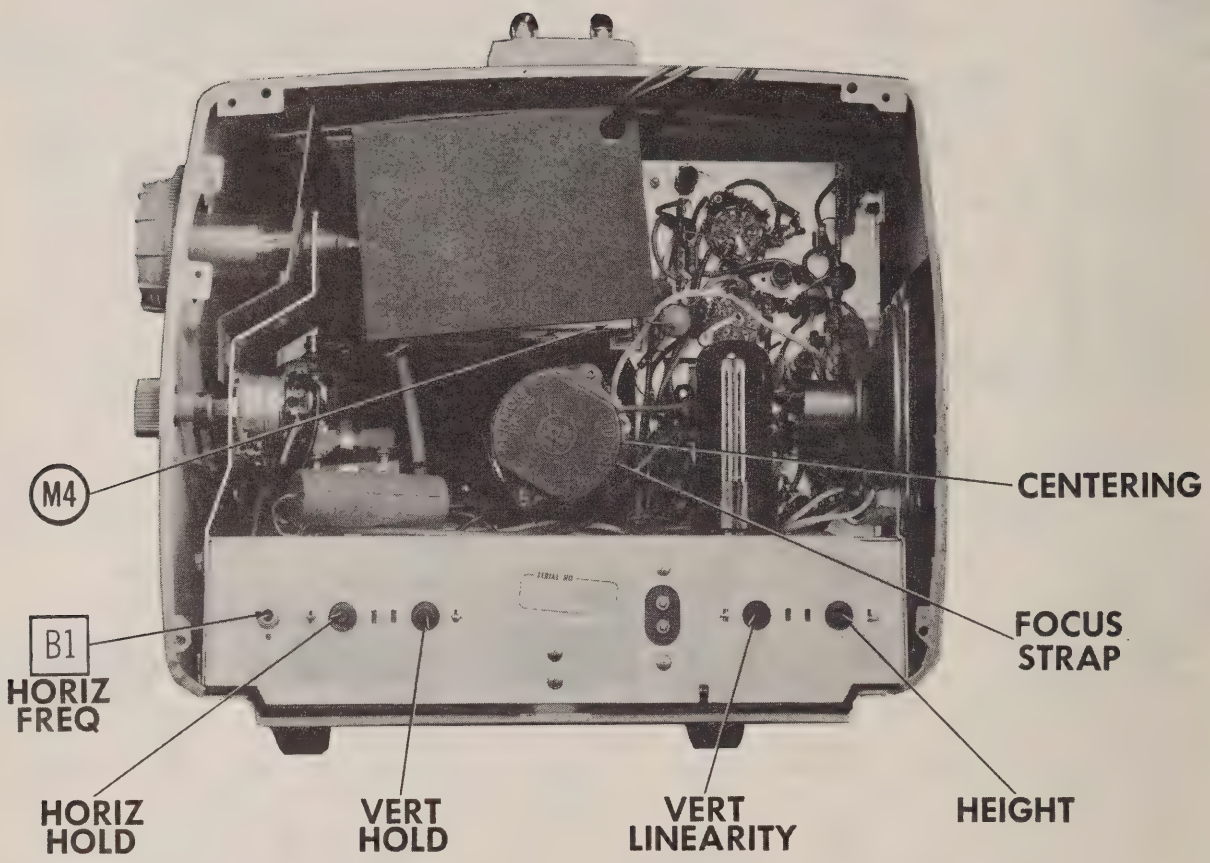


RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE

FOLDER 5



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR ADJUSTMENTS

1. Turn the set on and tune in a TV station, preferably with a test pattern.
2. Set the horizontal hold control to its mid-range position and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.
3. Check other stations and if necessary, retouch B1 for best sync action on all channels.

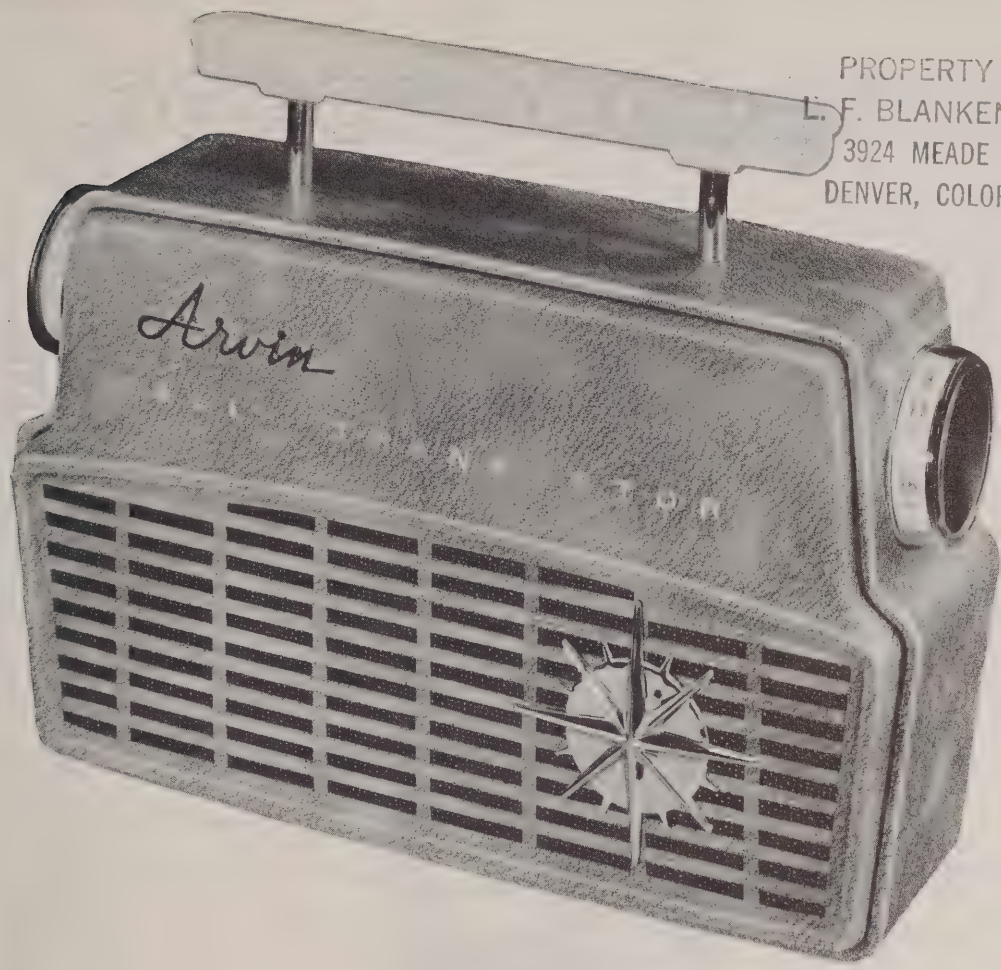
PHOTOFACT* Folder

*TRADE MARK

ARVIN MODEL 9574P (Ch. 1.43000)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

ARVIN MODEL
9574P (Ch. 1.43000)



ARVIN MODEL
9574P (Ch. 1.43000)

TRADE NAME	Arvin Model 9574P (Ch. 1.43000)
MANUFACTURER	Arvin Industries, Inc., Columbus, Indiana
TYPE SET	Battery Operated Portable AM Transistorized Receiver
POWER SUPPLY	9 Volts DC
RATING	8 MA @ 9 Volts DC
TUNING RANGE—BROADCAST	540 - 1670KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in the same relative position to chassis as when the receiver is in cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to ant. stator lug on tuning gang. Low side to B-.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1670KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	1400KC	"	A6	"

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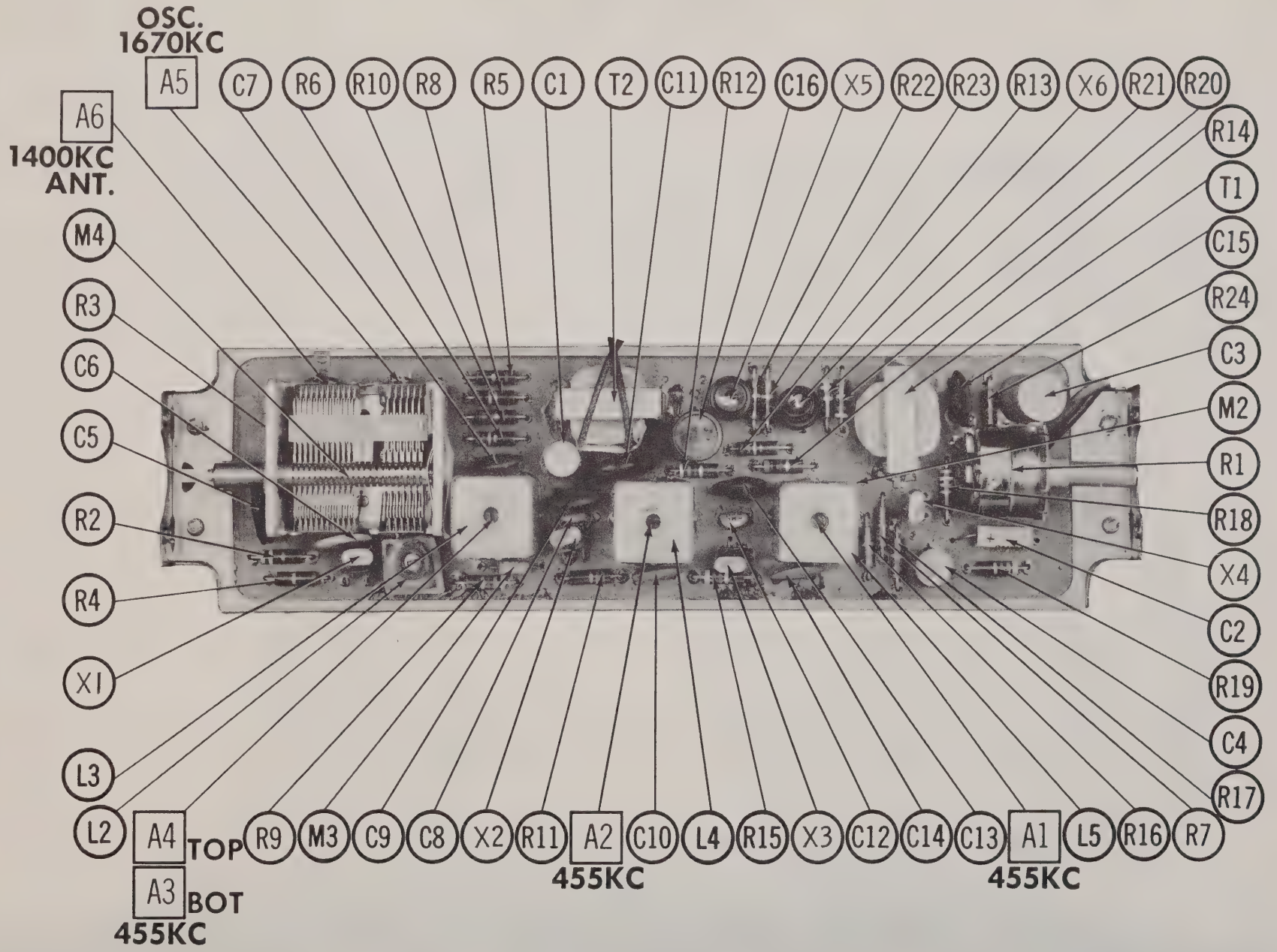


CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N212	Converter			2N212	
X2	2N94	1st IF Amplifier			2N94	
X3	2N94	2nd IF Amplifier			2N94	
X4	2N213	Driver			2N213	
X5	2N188A	Output				Alternate type: 2N241A
X6	2N188A	Output				Alternate type: 2N241A

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ARVIN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	10	10	44279-6	XPP10V10	NL10-10	TT12X10	ML10-15		TE-1114
C2	4	10	44396-1	XPP10V4	NL5-15	TT12X5	ML4-15		
C3A	80	10	44397-2		NL100-10				
B	80	10			NL100-10				
C4	80	10	44279-7		NL100-10				

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ARVIN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	50000								TG-S50	
C6	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	TG-S10	
C7	20000				DD-203		ED-02			
C8	9									
C9	20000				DD-203		ED-02			
C10	20000				DD-203		ED-02			
C11	50000								TG-S50	
C12	9									
C13A	20000									
B	20000									
C14	20000				DD-203		ED-02			
C15	4700				DD-472	BYA10D47M	ED-0047	UC-5247	5GA-D47	
C16	.22	100				BC2P22J		ACE6022	2SE-P22	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ARVIN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	5000Ω	½	44666					Volume - Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ARVIN PART No.	IRC PART No.	
R2	3900Ω 5%			BTS-3900 5%	
R3	68K 5%			BTS-68K 5%	
R4	1500Ω			BTS-1500	
R5	5600Ω 5%			BTS-5600 5%	
R6	62K 5%			BTS-62K 5%	
R7	5600Ω 5%			BTS-5600 5%	
R8	10K			BTS-10K	
R9	4700Ω			BTS-4700	
R10	5600Ω 5%			BTS-5600 5%	
R11	560Ω 5%			BTS-560 5%	
R12	4700Ω			BTS-4700	
R13	68K 5%			BTS-68K 5%	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ARVIN PART No.	IRC PART No.	
R14	1000Ω			BTS-1000	
R15	470Ω			BTS-470	
R16	220Ω			BTS-220	
R17	6800Ω			BTS-6800	
R18	39K			BTS-39K	
R19	470Ω			BTS-470	
R20	47Ω			BTS-47	
R21	3300Ω			BTS-3300	
R22	10Ω			BTS-10	
R23	10Ω			BTS-10	
R24	220Ω			BTS-220	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (INPUT)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ARVIN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1:	1	44672	GH112 ①			TR-2 ①	T-33X ①	① Cut off mounting tabs & use lead for mounting support. Tape center tap on primary winding.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ARVIN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	260Ω CT	3-4Ω	44671					TY-57X ①	① Bend ears down.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ARVIN PART No.	QUAM PART No.	
SP1	5"	PM	3-4Ω	44673	5A1	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		ARVIN PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	44471-67		BC-419		Includes handle assembly.
L2	Osc. Coil	44383-2				
L3	1st IF	44674				
L4	2nd IF	44675				
L5	3rd IF	44676				Note 1.

Note 1. Includes M2 & 20000 MMF Capacitor.

BATTERIES

ITEM No.	VOLTAGE	ARVIN PART No.	REPLACEMENT DATA								NOTES
			BURGESS		EVEREADY		MALLORY		RAY-O-VAC		
			"A"	"B"	"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V			D6		276		M-1603		1603	Connect two in parallel.

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ARVIN PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N295		1N60	1N34A	Audio Det. (Pigtail)
M3	1N295		1N60	1N34A	AGC (Pigtail)

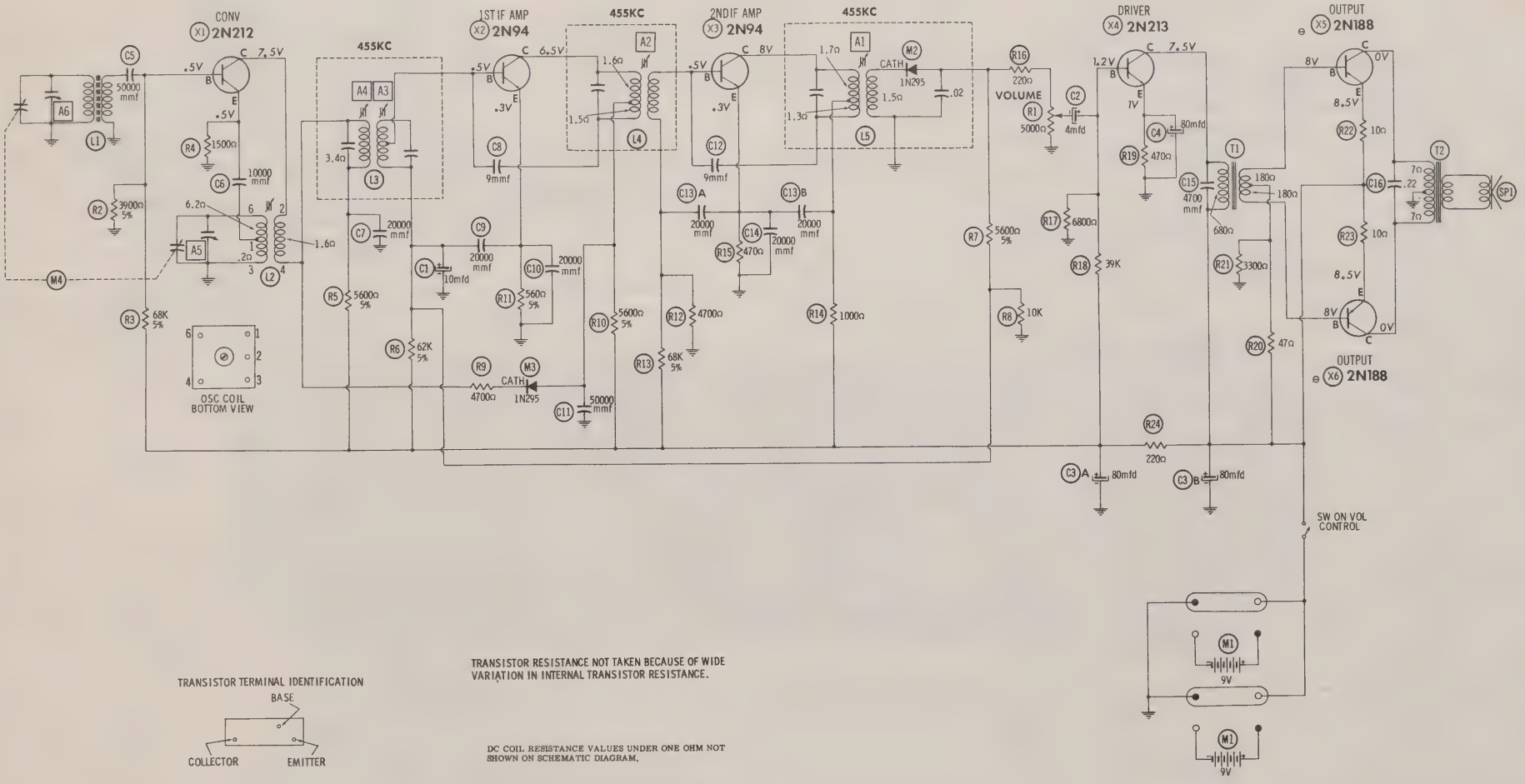
MISCELLANEOUS

ITEM No.	PART NAME	ARVIN PART No.	NOTES
M4	Tuning Cap.	44626	2 gang (Ant. 22-325 MMF)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	44627	Tuning
Knob	44681-67	On-Off-Volume
Dial	44628-67	
Cabinet	44898-67	Front, White (Handle Not Included)
Cabinet	44898-118	Front, Tan (Handle Not Included)
Cabinet	44658-67	Back, White
Cabinet	44658-118	Back, Tan



TRANSISTOR TERMINAL IDENTIFICATION

TRANSISTOR RESISTANCE NOT TAKEN BECAUSE OF WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

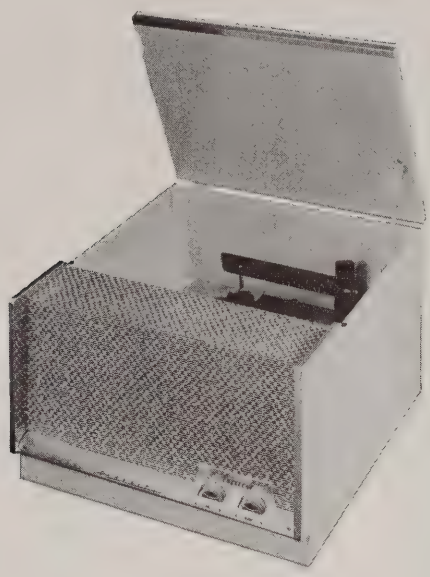
⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

PHOTOFACT* Folder
*TRADE MARK

CRESCENT MODELS A-744, A-746B, A-746E, A-746M

CRESCENT MODELS A-744, A-746B, A-746E, A-746M

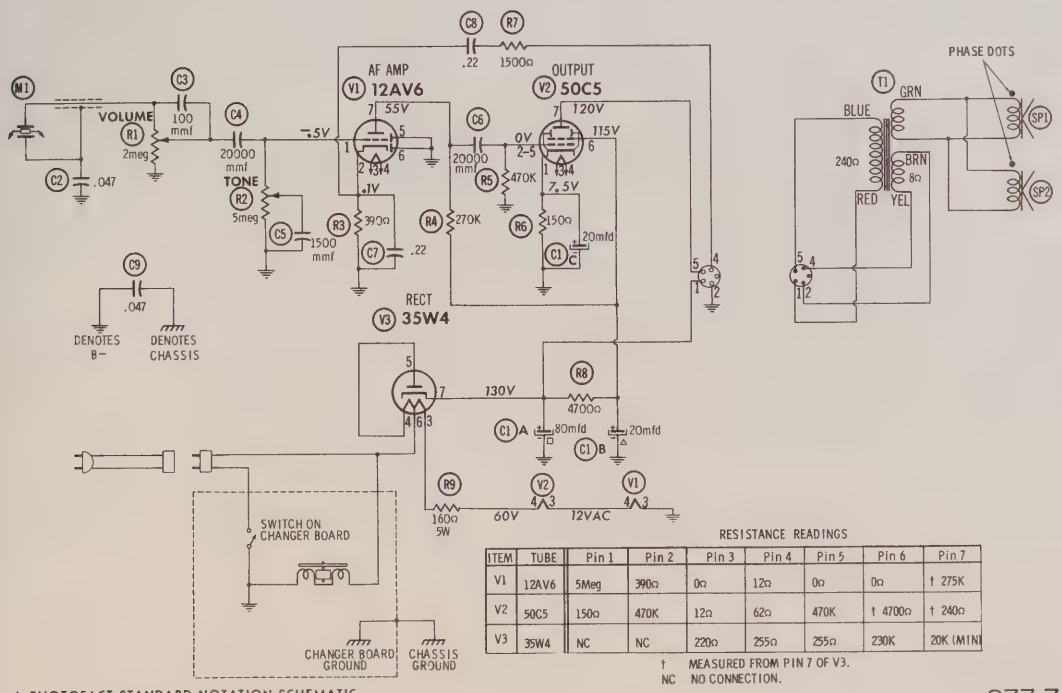


PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CRESCENT MODELS A-744, A-746B, A-746E, A-746M

TRADE NAME	Crescent Models A-744, A-746B, A-746E, A-746M
MANUFACTURER	Crescent Industries, Inc., 7300 N. Lehigh Ave., Chicago 31, Illinois
TYPE SET	AC Operated Phono Amplifier With 4 Speed Automatic Record Changer
TUBES (Three)	Types 12AV6 AF Amplifier, 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-60 Cycles RATING .25 Amp. @ 117 Volts AC (24 Watts Without Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER C708-10 — SEE CRESCENT MODEL C708 — PHOTOFACT SET 374 FOLDER 4.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AV6	5Meg	390Ω	0Ω	12Ω	0Ω	0Ω	† 275K
V2	50C5	150Ω	470K	12Ω	62Ω	470K	† 4700Ω	† 240Ω
V3	35W4	NC	NC	220Ω	255Ω	255Ω	230K	20K (MIN)

† MEASURED FROM PIN 7 OF V3.
NC NO CONNECTION.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

377-7

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AV6	
V2	Output	50C5	

ITEM No.	USE	TYPE	NOTES
V3	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA CRESCENT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■80	150			BBRQ53215C	WQ230	CDB-Q-4422	FMT-333	TVL-3431.5
B	▲20	150							
C	20	20							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA CRESCENT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.047	200				BC2S47J		ACE6147	2SE-S47	
C3	100			BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C4	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C5	1500			BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	
C6	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C7	.22	200				BC2P22J		ACE6022	2SE-P22	
C8	.22	200				BC2P22J		ACE6022	2SE-P22	
C9	.047	200				BC2S47J		ACE6147	2SE-S47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CRESCENT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	2Meg	½	740084					Volume
R2	5Meg	½	740083					Tone

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA CRESCENT PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R3	390Ω			BTS-390	
R4	270K			BTS-270K	
R5	470K			BTS-470K	
R6	150Ω			BTS-150	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA CRESCENT PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R7	1500Ω			BTS-1500	
R8	4700Ω			BTS-4700	
R9	160Ω	5			

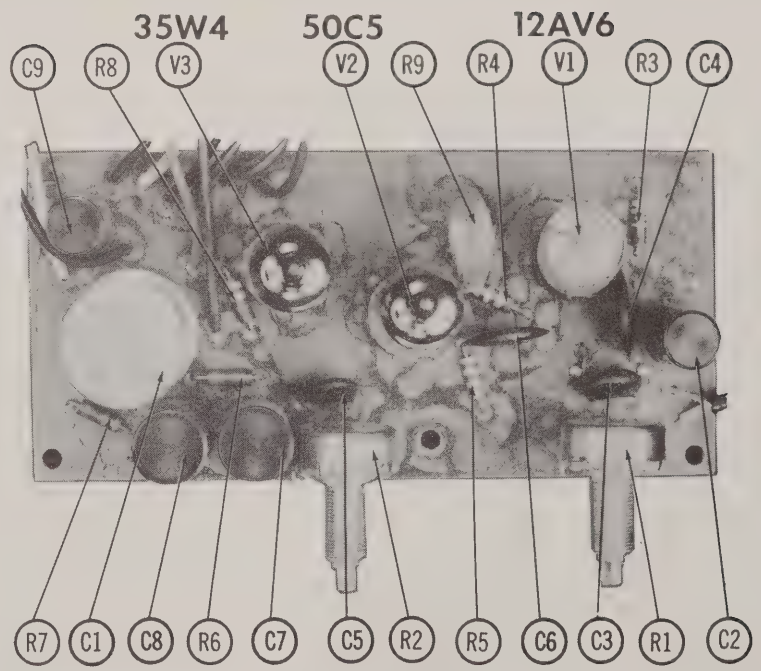
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA CRESCENT PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2500Ω	1.6Ω	700099						

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA CRESCENT PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	5 1/4"	PM	3-4Ω	011298 ①	52A1 ①	① Parallel And Phase
SP2	5 1/4"	PM	3-4Ω	013393 ①②	52A1 ①	② Includes T1.

CHASSIS—TOP VIEW



PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA CRESCENT PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M1	720091	53T	GD	56	PT-2	

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA CRESCENT PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2	720055	† S-66 or †♦ S-66SD or ♦ S-66D	† W75TPS or †♦ W75DS or ♦ W75TPD	† Jewel ♦ Diamond

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

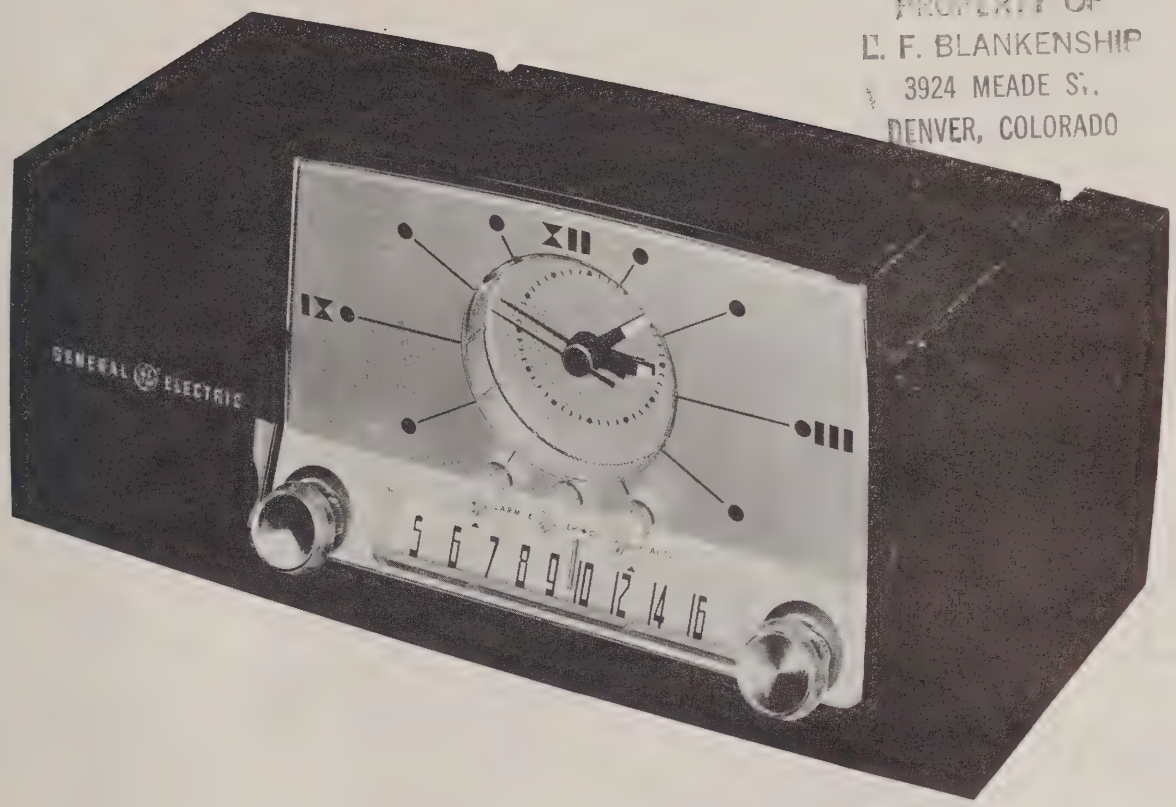
NAME	PART NO.	DESCRIPTION
Knob	310455	On-Off-Reject
Knob	310451	Tone, Volume
Knob	310454	Speed Selector
Cabinet	440386	Includes Lid, Model A-746 Mahogany
Cabinet	440395	Includes Lid, Model A-746 Blonde
Cabinet	440394	Includes Lid, Model A-746 Ebony
Cabinet	440373	Includes Lid, Model A-744

PHOTOFACT* Folder
*TRADE MARK

GENERAL ELECTRIC MODELS 911D, 912D, 913D, 914D

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

GENERAL ELECTRIC MODELS
911D, 912D, 913D, 914D



GENERAL ELECTRIC MODELS
911D, 912D, 913D, 914D

TRADE NAME	General Electric Models 911D, 912D, 913D, 914D
MANUFACTURER	General Electric Co., Products Service, Radio Receiver Dept., 869 Broad St., Utica, N.Y.
TYPE SET	AC Operated AM Receiver With Electric Clock
TUBES (Five)	Types 12AU6 Converter, 12BA6 IF Amplifier, 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-120 Volts AC-60 Cycles
RATING	.27 Amp. @ 117 Volts AC, 26 Watts (Without Clock)
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 1 (grid) of 12AU6 (V1). Low side to B-.	455KC (400∿ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1500KC	Tune to 1500KC signal	"	A6	Adjust for maximum output while rocking tuning gang.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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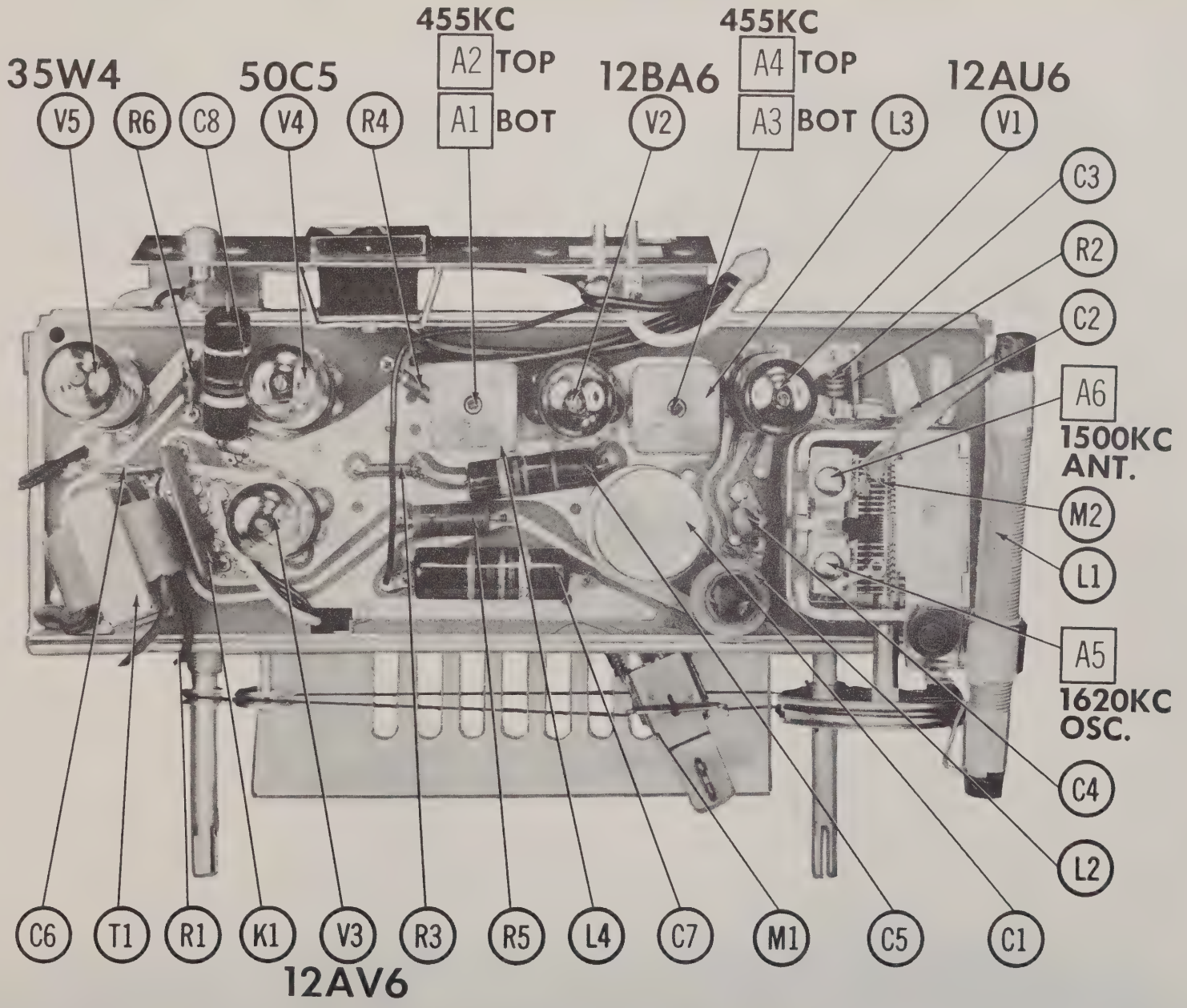


CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12AU6	
V2	IF Amplifier	12BA6	
V3	Det.-AVC-AF Amp.	12AV6	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA G.E. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■75	150	RCE-231	PRS150V8040	BBRD8415	TCT3115	TDLD-10	MTD-303	
B	▲30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA G.E. PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	22			SI 22	D6-220	LT6Q22	GP-22	UC-5422	5GA-Q22	
C3	22			SI 22	D6-220	LT6Q22	GP-22	UC-5422	5GA-Q22	
C4	3.0		RCW-3216	NP0-SI 3.0	TCZ-3	C10V3C	TCO-3	ZT-553	5TCCB-V3	
C5	.047	400		BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C6	10000		RCW-3186	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C7	.047	600	RCN-109	BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	
C8	.047	400	RCC-125	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA G.E. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	RRC-375	ABT-71	A47F5-1Meg		UT-443	Volume-Tap ⓐ 500K
B	Shaft			AK-4	KSS-3		Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA G.E. PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R2	2.2Meg			BTS-2.2Meg	
R3	2.2Meg			BTS-2.2Meg	
R4	150Ω			BTS-150	
R5	1500Ω	2		BTB-1500	
R6	18Ω			BTS-18	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA G.E. PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2700Ω	3-4Ω	RTO-176	Z1101 ①	A-3025①	A-3332 ①	26S58 ②	S-12X ①	① Use original mounting frame. ② Bend ears down.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA G.E. PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	ROP-033	4A07	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA G.E. PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Loop Stick	RLL-064				
L2	Osc. Coil	RLC-142				
L3	Input IF	RTL-197	16-6780	BC-356	13-PC9	
L4	Output IF	RTL-197	16-6780	BC-357	13-PC10	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	G.E. PART No.	REPLACEMENT DATA
K1	Audio Coup. Net.	5000MMF, 2000MMF, 400MMF, 220MMF, 470K, 470K, 6.8Meg	REK-011	

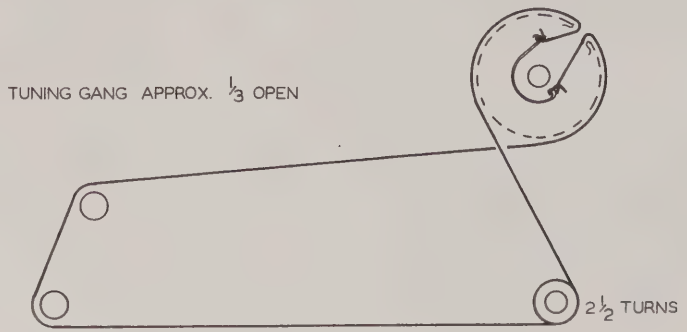
MISCELLANEOUS

ITEM No.	PART NAME	G.E. PART No.	NOTES
M1	Dial Light		Type #44
M2	Tuning Cap.	RCT-099	2 Gang (Ant. 12-290MMF, Osc. 10-110MMF)

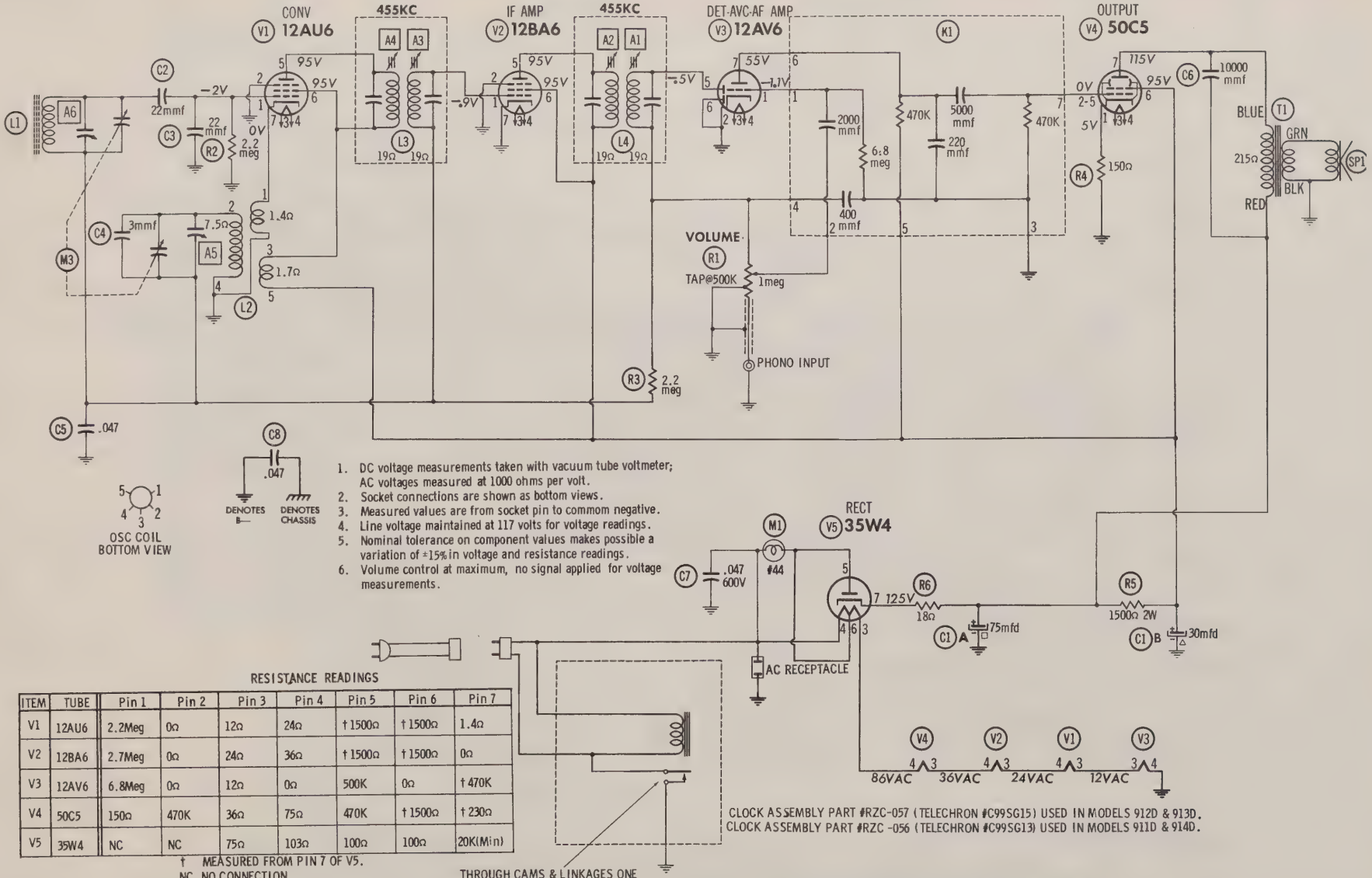
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	RDK-425	On-off-volume, tuning
Knob	RZK-017	Clock
Cabinet	RAC-193	Mahogany - Model 911D
Cabinet	RAC-194	Ivory - Model 912D
Cabinet	RAC-195	Pink - Model 913D
Cabinet	RAC-211	Turquoise - Model 914D
Pointer Assy.	RDP-090	
Dial Scale	RDW-097	Gold (Includes window) Models 911D, 914D
Dial Scale	RDW-098	Black (Includes window) Models 912D, 913D
Clock Assy.	RZC-056	Gold (Telechron #C99SG13) Models 911D, 914D
Clock Assy.	RZC-057	Black (Telechron #C99SG15) Models 912D, 913D
Cabinet Back	RAB-309	Mahogany - Model 911D
Cabinet Back	RAB-310	Ivory - Model 912D
Cabinet Back	RAB-311	Pink - Model 913D
Cabinet Back	RAB-328	Turquoise - Model 914D



DIAL CORD STRINGING



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AU6	2.2Meg	0Ω	12Ω	24Ω	†1500Ω	†1500Ω	1.4Ω
V2	12BA6	2.7Meg	0Ω	24Ω	36Ω	†1500Ω	†1500Ω	0Ω
V3	12AV6	6.8Meg	0Ω	12Ω	0Ω	500K	0Ω	†470K
V4	50C5	150Ω	470K	36Ω	75Ω	470K	†1500Ω	†230Ω
V5	35W4	NC	NC	75Ω	103Ω	100Ω	100Ω	20K(Min)

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.

CLOCK ASSEMBLY PART #RZC-057 (TELECHRON #C99SG15) USED IN MODELS 912D & 913D.
CLOCK ASSEMBLY PART #RZC -056 (TELECHRON #C99SG13) USED IN MODELS 911D & 914D.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

PHOTOFACT* Folder
*TRADE MARK

INTERNATIONAL MODELS
IL7TC, IL7TC-12

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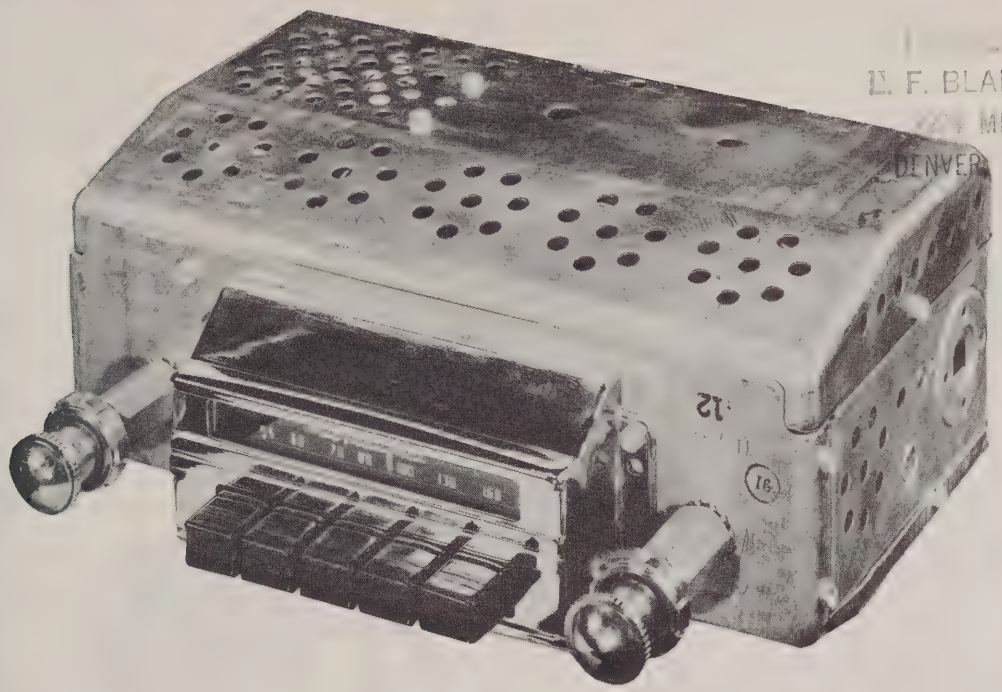
INTERNATIONAL MODELS
IL7TC, IL7TC-12



TRADE NAME	International Models IL7TC, IL7TC-12 (For 1957 International R-Line Trucks)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated Custom Built AM Truck Receiver
TUBES (Six)	Types 12BA6 RF Amplifier, 12BE6 Converter, 12BA6 IF Amplifier, 12CR6 Det.-AVC-AF Amp., 12AQ5 Output, 12X4 Output (Model IL7TC uses 6BD6, 6BE6, 6BD6, 6CR6, 6AQ5, 6X4)
POWER SUPPLY	6 Volt Storage Battery (Model IL7TC) RATING 6 Amp. @ 6.3 Volts DC
	12 Volt Storage Battery (Model IL7TC-12) 3 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540KC - 1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V2). Low side to chassis.	455KC (400~ Mod)	High frequency end stop	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	Fig. 1	Thru dummy to Antenna Receptacle.	1610KC	"	"	A5, A6, A7	"
	The following steps are not necessary unless tuner cores have been tampered with or associated components have been replaced. Back tuner cores A8, A9, and A10 out of coils. Proceed with Step 3.						
3.	Fig. 1	Thru dummy to Antenna Receptacle.	1610KC	High frequency end stop	Across voice coil	A5, A6, A7	Adjust for maximum output.
4.	"	"	1200KC	Adjust tuner carriage 9/32" from high freq. end stop.	"	A8, A9, A10	(Alignment tool Motorola Part No. 66A76278 may be used.) Adjust for maximum output.
5.	"	"	1610KC	High frequency end stop	"	A5, A6, A7	Adjust for maximum output. Repeat steps 4 & 5.
6.	With radio installed in car and antenna fully extended, tune in a weak station at 1400KC and adjust A7 for maximum volume.						

PUSHBUTTON ADJUSTMENT

1. Pull pushbutton out.
2. Tune manually to desired station.
3. Press pushbutton in firmly.
4. Repeat procedure on remaining pushbuttons.

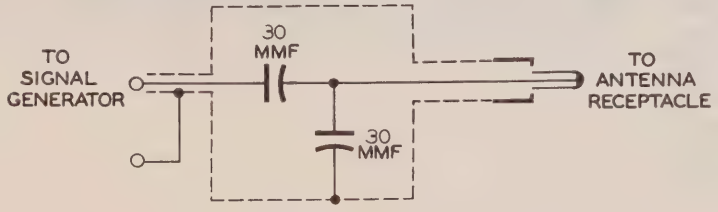
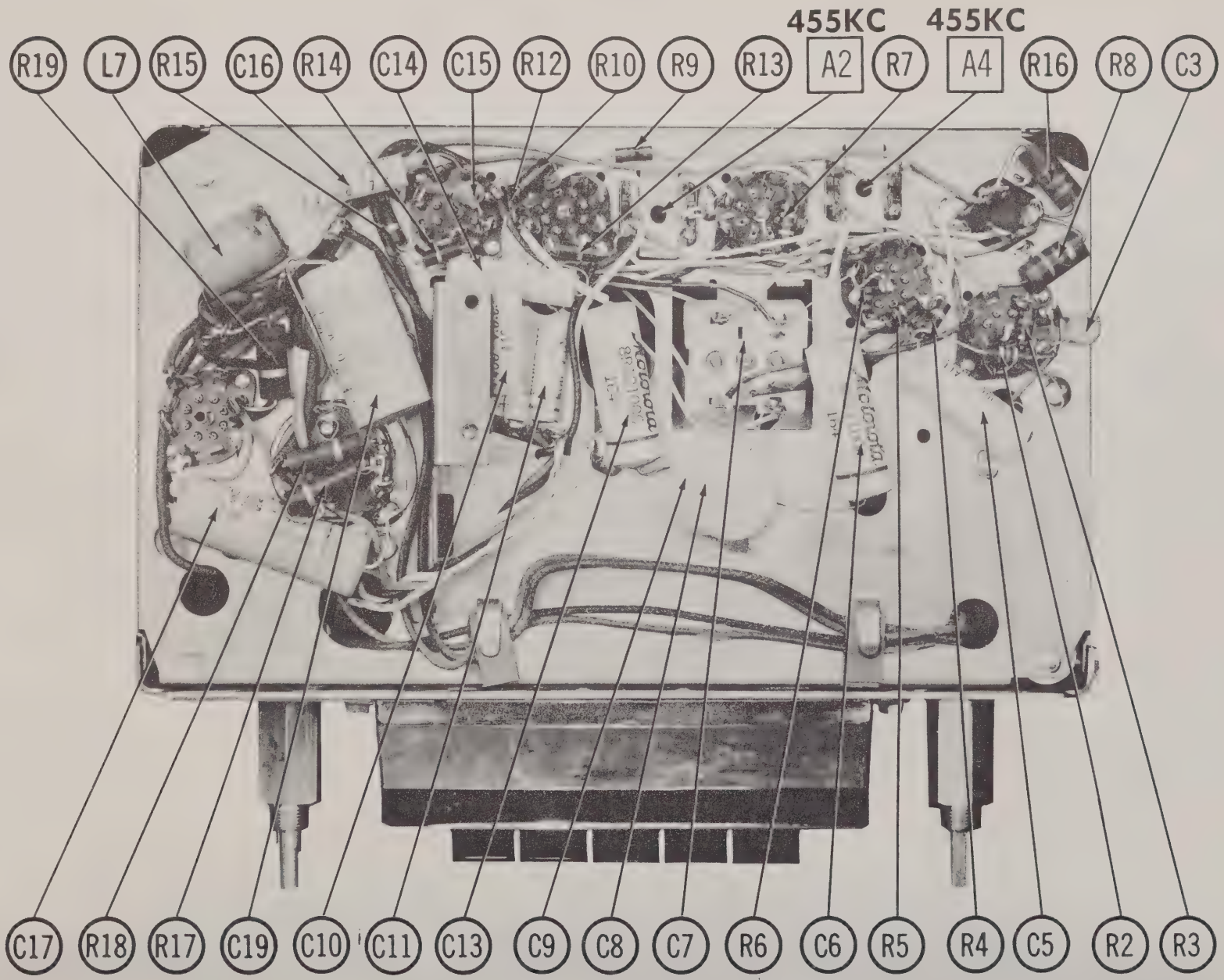


FIG. 1

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America



CHASSIS-BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	Note 1
V2	Converter	12BE6	Note 2
V3	IF Amplifier	12BA6	Note 1
V4	Det. -AVC-AF Amp.	12CR6	Note 3
V5	Output	12AQ5	Note 4
V6	Rectifier	12X4	Note 5

Note 1. Type 6BD6 used in Model IL7TC
Note 2. Type 6BE6 used in Model IL7TC
Note 3. Type 6CR6 used in Model IL7TC
Note 4. Type 6AQ5 used in Model IL7TC
Note 5. Type 6X4 used in Model IL7TC

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■15	350	23A485677	AFH3-104	C0770	FP328	TMT-89	T-455	TVL-3630
B	▲10	350							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	90	500	21A591682							
C3	22		21R120539							N150 10%
C4	50-280		20A501419							
C5	.05	200	8R121005	BPD-05	DF-503	CUB2S5		GEM-215	2TM-S5	
C6	.1	400	8R121006	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C7A	7.5-75		20B536839							
B	4.7									
C	47									
D	7.5-50									
C8	200									N150 5% ①
C9	200									N150 5% ①
C10	.01	400	8R121002	BPD-01	DD-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C11	.002	600	8R121568	BPD-002	DD-202	CUB6D2	GP-2000	GEM-622	6TM-D2	
C12	.02	200	8R121003	BPD-02	DD-203	CUB2S2	ED-02	GEM-212	2TM-S2	
C13	.1	400	8R121006	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C14	.02	400	8R121566	BPD-02	DD-203	CUB4S2	ED-02	GEM-412	4TM-S2	
C15	470		21R115856	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C16	.004	600	8R121000	BPD-004	DD-402	CUB6D4	GP-4000	GEM-624	6TM-D4	
C17	.04	1000	8A121549	P1088N-04		CUB10S4		GEM-1014	10TM-S4	②
C18	.5	100	8K121666	P288N-5		CUB2P5		GEM-205	2TM-P5	
C19	.5	100	8K121666	P288N-5		CUB2P5		GEM-205	2TM-P5	

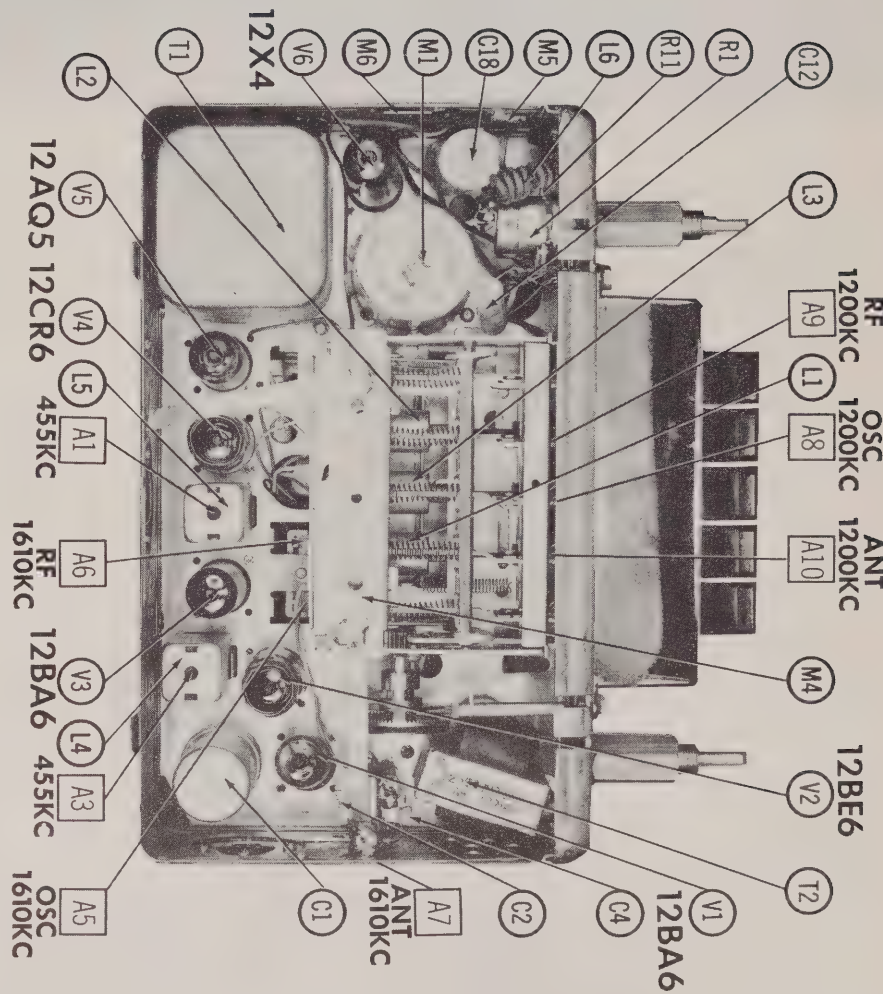
① When C8 is 400MMF (Part #21A71872) C9 is not used.
② Model IL7TC uses .02MFD ② 1000V Part #8R121004 in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg		18K535758	F1-51	RTV-588C	♦QJ-1009A	UE1656S	Tone
B	250K			R2-38	Not Req.		Not Req.	Volume, Tap ② 125K
C	Switch			KB-4	Not Req.		Not Req.	

♦ Concentrikit Equivalent; K-6 Kit, Base Elements and Shafts: B11-137, P13-122 (Panel)
B13-130X, R1-202 (Rear)
76-1 (Switch)

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R2	470K		6R6032	BTS-470K	
R3	180Ω		6R5660	BTS-180	Note 1
R4	100K		6R6075	BTS-100K	
R5	10Meg		6R5622	BTS-10Meg	
R6	33K		6R6012	BTS-33K	
R7	330Ω		6R6022	BTS-330	Note 2
R8	6800Ω	2	6R5690	BTB-6800	
R9	1Meg		6R6004	BTS-1Meg	
R10	2.2Meg		6R3927	BTS-2.2Meg	
R11	15K		6R2119	BTS-15K	
R12	1Meg		6R6004	BTS-1Meg	
R13	220K		6R6015	BTS-220K	
R14	220K		6R6015	BTS-220K	
R15	270Ω	1	6R6336	BTA-270	
R16	2200Ω	2	6R476130	BTB-2200	
R17	220Ω	2	6R6389	BTB-220	Note 3
R18	220Ω	2	6R6389	BTB-220	Note 3
R19	22Ω	2	6R2009		Note 4

Note 1. Model IL7TC uses 150Ω (Part #6R6373).
Note 2. Model IL7TC uses 270Ω (Part #6R6432).
Note 3. Model IL7TC uses 56Ω (Part #6R5614).
Note 4. Used in Model IL7TC-12 only.

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	12.6VCT ② 1.6A 6.3VCT ② 3.3A	560VCT ② .052A 416VCT ② .049A			25C530737 ① 25C472533 ②			P-6471		

① Used in Model IL7TC-12. ② Used in Model IL7TC.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5700Ω	3-4Ω	25B500727	Z1107	A-2930	A-3877	24S51	S-3X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	5" X 7"	PM	3-4Ω	50C532450	57A21	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	24K539491				①
L2	RF Coil	24K539493				①
L3	Osc. Coil	24K539492				①
L4	Input IF	24C485553	16-6758	BC-352	12-C1	
L5	Output IF	24K485555	16-6770	BC-355	12-C6	
L6	"A" Lead Choke	24K592269				1 Microhenry
L7	Hash Choke	24A521816				② 18 Microhenries
	Hash Choke	24A472535				③ 15.2 Microhenries

① Part of Tuner Assembly M4 (Part #77D541528).
② Used in Model IL7TC-12 only. ③ Used in Model IL7TC only.

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				MOTOROLA PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12.6V	115∿	48B522000 ①	6326	G859	6326	① Used in Mod. IL7TC-12
	Interrupter	6.3V	115∿	48B3333 ②	5342	903M	5342	② Used in Mod. IL7TC

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	SFE	9A	65R16248 ①	9K530763	307009. (SFE 9A 32V)	155009	SFE9	HHH

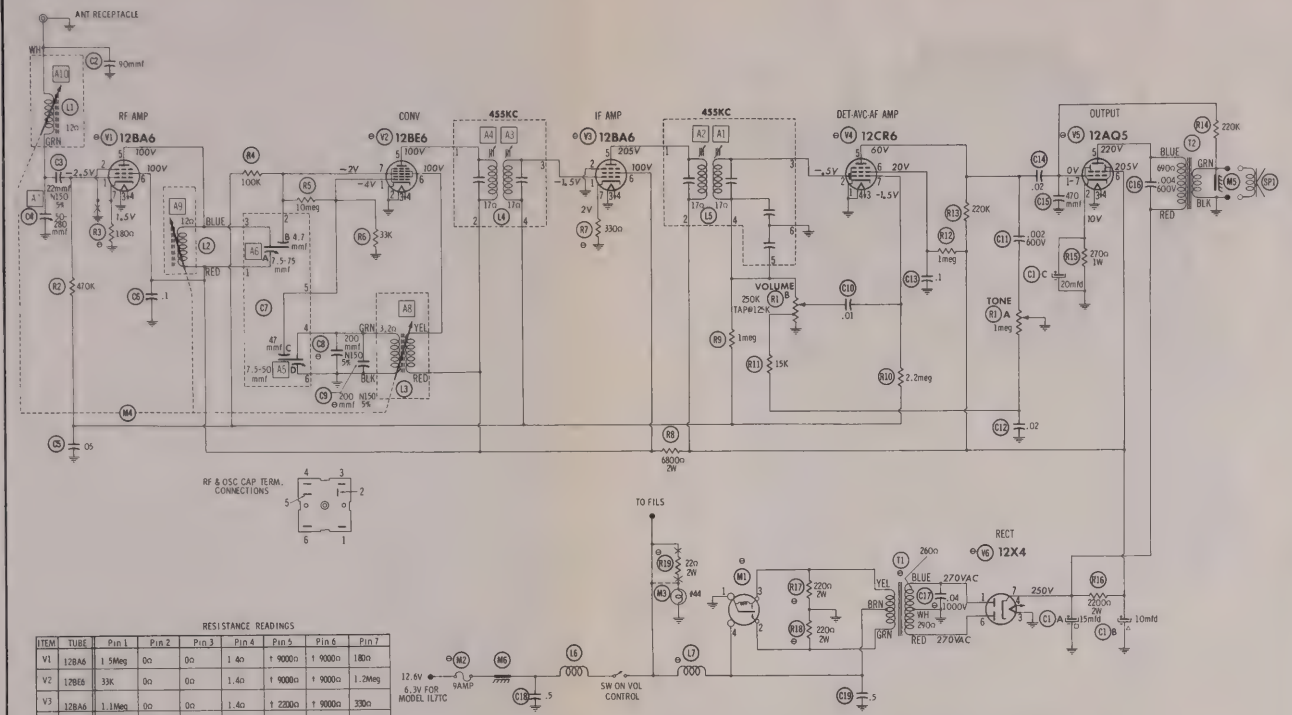
① Part #65K12894 (14 Amp) used in Model IL7TC.

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M3	Pilot Light	65R10867	#44
M4	Tuner	77D541528	(AT-220) Complete Assembly
M5	Spark Plate	64K531672	
M6	Spark Plate	64K531672	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BA6	1.5Meg	0Ω	0Ω	1.4Ω	↑ 9000Ω	↑ 9000Ω	180Ω
V2	12BE6	33K	0Ω	0Ω	1.4Ω	↑ 9000Ω	↑ 9000Ω	1.2Meg
V3	12BA6	1.1Meg	0Ω	0Ω	1.4Ω	↑ 2200Ω	↑ 9000Ω	330Ω
V4	12CR6	0Ω	180K	1.4Ω	0Ω	↑ 220K	↑ 1Meg	3.3Meg
V5	12AQ5	220K	270Ω	0Ω	1.4Ω	↑ 690Ω	↑ 2200Ω	220K
V6	12X4	260Ω	NC	0Ω	1.4Ω	NC	290Ω	20K(MIN)

↑ MEASURED FROM PIN 7 OF V6.
NC NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE ON APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

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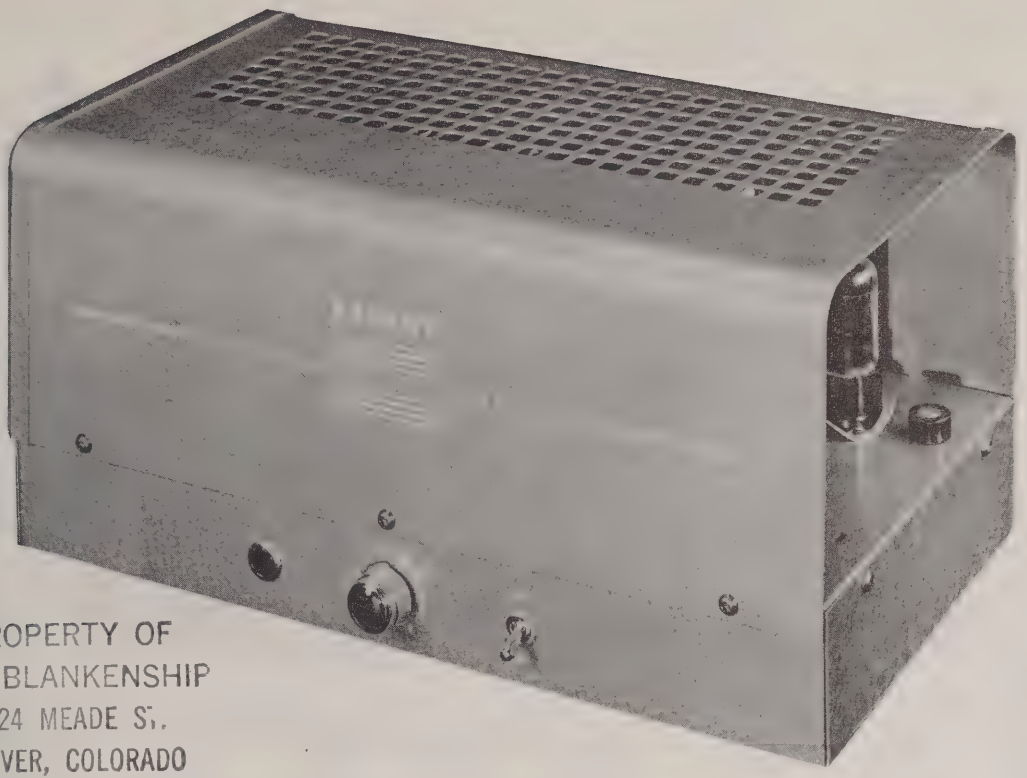
*TRADE MARK

KNIGHT MODEL 93SZ694

KNIGHT MODEL 93SZ694



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KNIGHT MODEL 93SZ694

TRADE NAME	Knight Model 93SZ694
SUPPLIER	Allied Radio Corp., 100 N. Western Ave., Chicago 80, Illinois
TYPE SET	AC Operated 60 Watt Audio Amplifier
TUBES (Six)	Types ECC83/12AX7 (or) 12AD7 AF Amplifier, 6C4 Phase Inverter, (2) EL84/6CA7 Output, 5U4GB Rectifier, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .9 Amp. @ 117 Volts AC (95 Watts)

TRUMPET PROTECTOR SW (M4)

If trumpet speakers are used for both the booster amplifier output and also the main amplifier output, the trumpet protector switch in the main amplifier should be "ON" and the switch in the booster amplifier should be "OFF":
When using a combination of trumpet and cone-type speakers, connect the cone-type to the main amplifier output and the trumpet speakers to the booster amplifier output. The trumpet protector switch in the main amplifier should be "OFF" and the switch in the booster amplifier should be "ON".
If no trumpet speakers are used, the trumpet protector switch in both the main and booster amplifiers should be "OFF".

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The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

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FOLDER 10

PARTS LIST AND DESCRIPTIONS

KNIGHT
MODEL 93SZ694

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	ECC83/ 12AX7	Note 1
V2	Phase Inverter	6C4	
V3	Output	EL84/6CA7	
V4	Output	EL84/6CA7	
V5	Rectifier	5U4GB	
V6	Rectifier	5Y3GT	

Note 1. Some versions may use a 12AD7 in this application.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	KNIGHT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	300	(Note 1)	AFH2-57	B0450	FP217. 87	TMD-31	D-130	TVL-2575
B	▲40	300							
C2A	▲40	450	(Note 2)	AFH4-17	D0160	FP475. 5	TMQ-17	Q-055	TVL-4771. 3
B	■10	450							
C	▲10	450							
D	10	450							
C3	8	450		PRS450V8	BR845	TC71	TD-8-450	MT-4508	TVA-1704
C4	35	50		PRS150V40	BR505	TC48	TD-4-150	MT-1540	TVA-1308

Note 1. In some versions C1 may be an 80MFD unit.
Note 2. In some versions C2A, C2B, C2C may be combined in one 60MFD section.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	KNIGHT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C6	. 047	600		P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C7	. 047	600		P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C8	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C9	. 047	600		P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C10	. 047	600		P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C11	. 02	600		P688N-02	DD-203	CUB6S2	ED-02	GEM-612	6TM-S2	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	KNIGHT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	100K	½		B-41	A47-100K-Z	Q13-128	U39	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

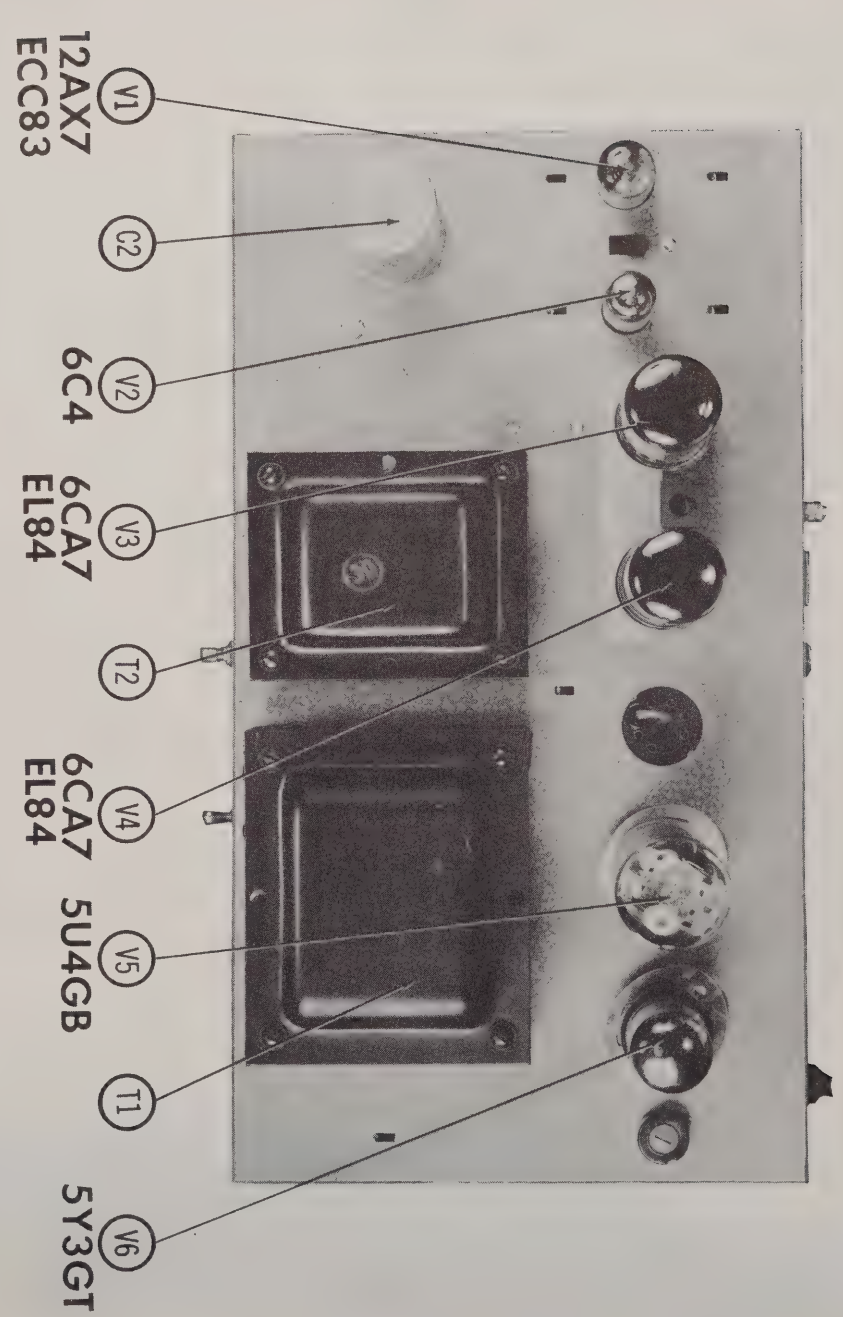
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	KNIGHT PART No.	IRC PART No.	
R2	220K			BTS-220K	
R3	3300Ω			BTS-3300	
R4	470K			BTS-470K	
R5	220K			BTS-220K	
R6	3300Ω			BTS-3300	
R7	22K	1		BTA-22K	
R8	20K 5%			BTS-20K 5%	
R9	470K			BTS-470K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	KNIGHT PART No.	IRC PART No.	
R10	47K			BTS-47K	
R11	47K			BTS-47K	
R12	2200Ω			BTS-2200	
R13	10K	2		BTB-10K	
R14	100K			BTS-100K	
R15	100K			BTS-100K	
R16	68K			BTS-68K	
R17	33K			BTS-33K	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	KNIGHT PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .9A	940VCT @ .050A Tap @ 620VCT @ .011A Tap @ 70V @ .001A	5VAC @ 3A	5VAC @ 2A SEC. 4 6.3VCT @ 3.6A	LP-0256					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	KNIGHT PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	3400Ω CT	500Ω Tap @ 250Ω, 70V, 16Ω, 8Ω, 4Ω	L0-0148						

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	KNIGHT PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.001A		1159	RS050	10	

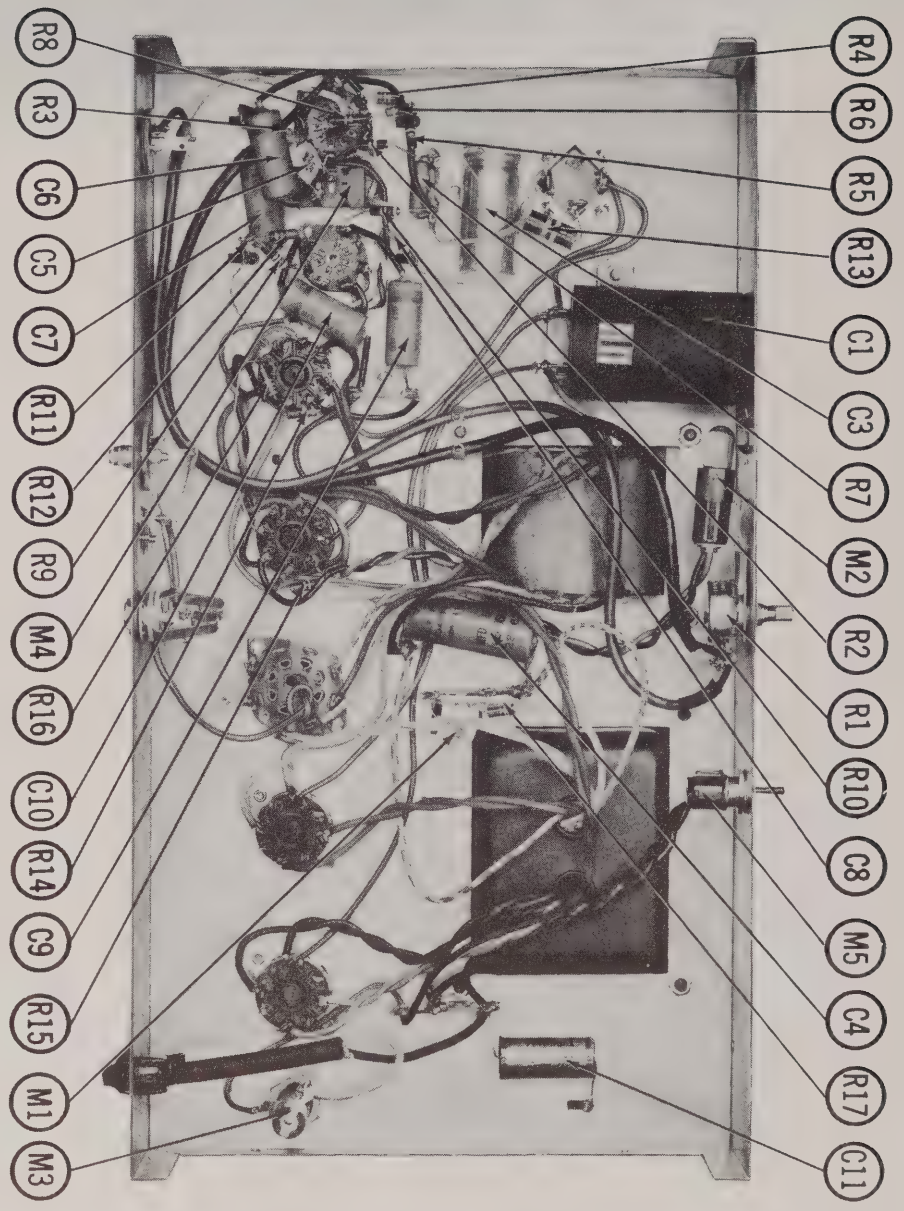
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			KNIGHT PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	3A 125V S/B			313003. (3AG 3A 125V S/B)	341001	MDX3	HKP

MISCELLANEOUS

ITEM No.	PART NAME	KNIGHT PART No.	NOTES
M3	Pilot		#1847
M4	Switch		Trumpet Protector (Slide Type SPST)
M5	Switch		On-Off (Toggle)

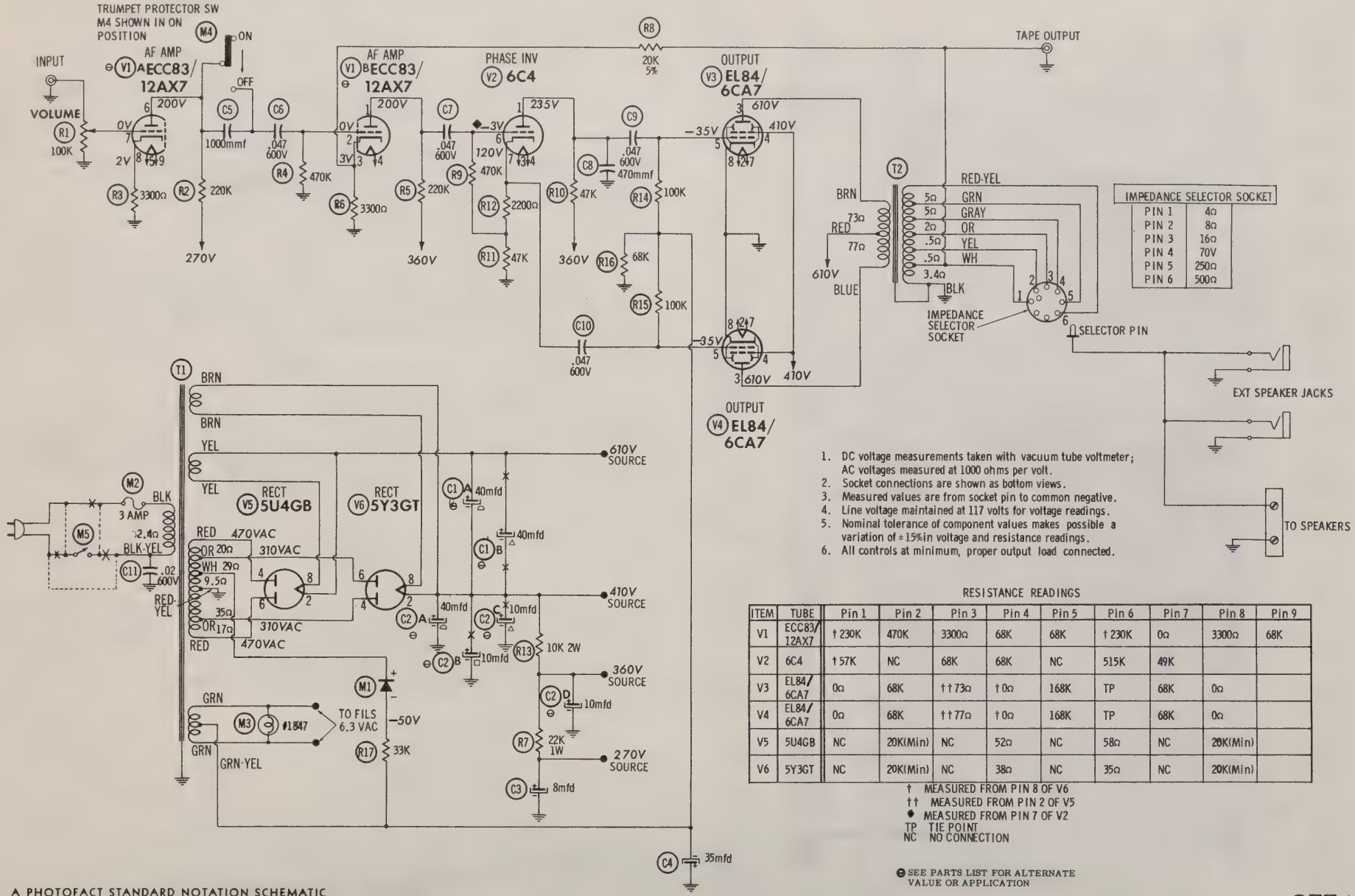
CHASSIS—BOTTOM VIEW



FOLDER 10

KNIGHT MODEL 93SZ694

KNIGHT MODEL 93SZ694



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83/ 12AX7	† 230K	470K	3300Ω	68K	68K	† 230K	0Ω	3300Ω	68K
V2	6C4	† 57K	NC	68K	68K	NC	515K	49K		
V3	EL84/ 6CA7	0Ω	68K	†† 73Ω	† 0Ω	168K	TP	68K	0Ω	
V4	EL84/ 6CA7	0Ω	68K	†† 77Ω	† 0Ω	168K	TP	68K	0Ω	
V5	5U4GB	NC	20K(Min)	NC	52Ω	NC	58Ω	NC	20K(Min)	
V6	5Y3GT	NC	20K(Min)	NC	38Ω	NC	35Ω	NC	20K(Min)	

† MEASURED FROM PIN 8 OF V6
†† MEASURED FROM PIN 2 OF V5
◆ MEASURED FROM PIN 7 OF V2
TP TIE POINT
NC NO CONNECTION

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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*TRADE MARK

MAGNAVOX CHASSIS
AMP-162

MAGNAVOX CHASSIS
AMP-162

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

MAGNAVOX CHASSIS
AMP-162

TRADE NAME	Magnavox Chassis AMP-162
MANUFACTURER	Magnavox Co., 2131 Bueter Road, Fort Wayne 4, Indiana
TYPE SET	AC Operated Audio Amplifier
TUBES (Nine)	Types 12AT7 Low Freq. AF Amp. - Phase Inv., (4) 6V6GT Low Freq. Output, 6AT6 High Freq. AF Amplifier, 6V6GT High Freq. Output, (2) 5U4GA Rectifier
POWER SUPPLY	110-120 Volts AC-50/60 Cycles RATING 1.35 Amp. @ 117 Volts AC (140 Watts)

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PARTS LIST AND DESCRIPTIONS

MAGNAVOX
CHASSIS AMP-162

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	L. F. AF Amp. - Phase Inv.	12AT7	
V2	L. F. Output	6V6GT	
V3	L. F. Output	6V6GT	
V4	L. F. Output	6V6GT	
V5	L. F. Output	6V6GT	

ITEM No.	USE	TYPE	NOTES
V6	H. F. AF Amplifier	6AT6	
V7	H. F. Output	6V6GT	
V8	Rectifier	5U4GA	
V9	Rectifier	5U4GA	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MAGNAVOX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■30	475	270023-2	AFH3-155-30	B0410	FP259	TMD-51	S-295	TVL-2824
B	▲10	475						MT-4710	
C2A	▲10	475	270023-2	AFH3-155-30	B0410	FP259	TMD-51	S-295	TVL-2824
B	■30	475						MT-4710	
C3A	■30	475	270023-2	AFH3-155-30	B0410	FP259	TMD-51	S-295	TVL-2824
B	▲10	475						MT-4710	
C4	20	25	270027-28	PRS50V20	BBR20-25	TC26	TD-25-25	MT-0220	TVA-1205

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

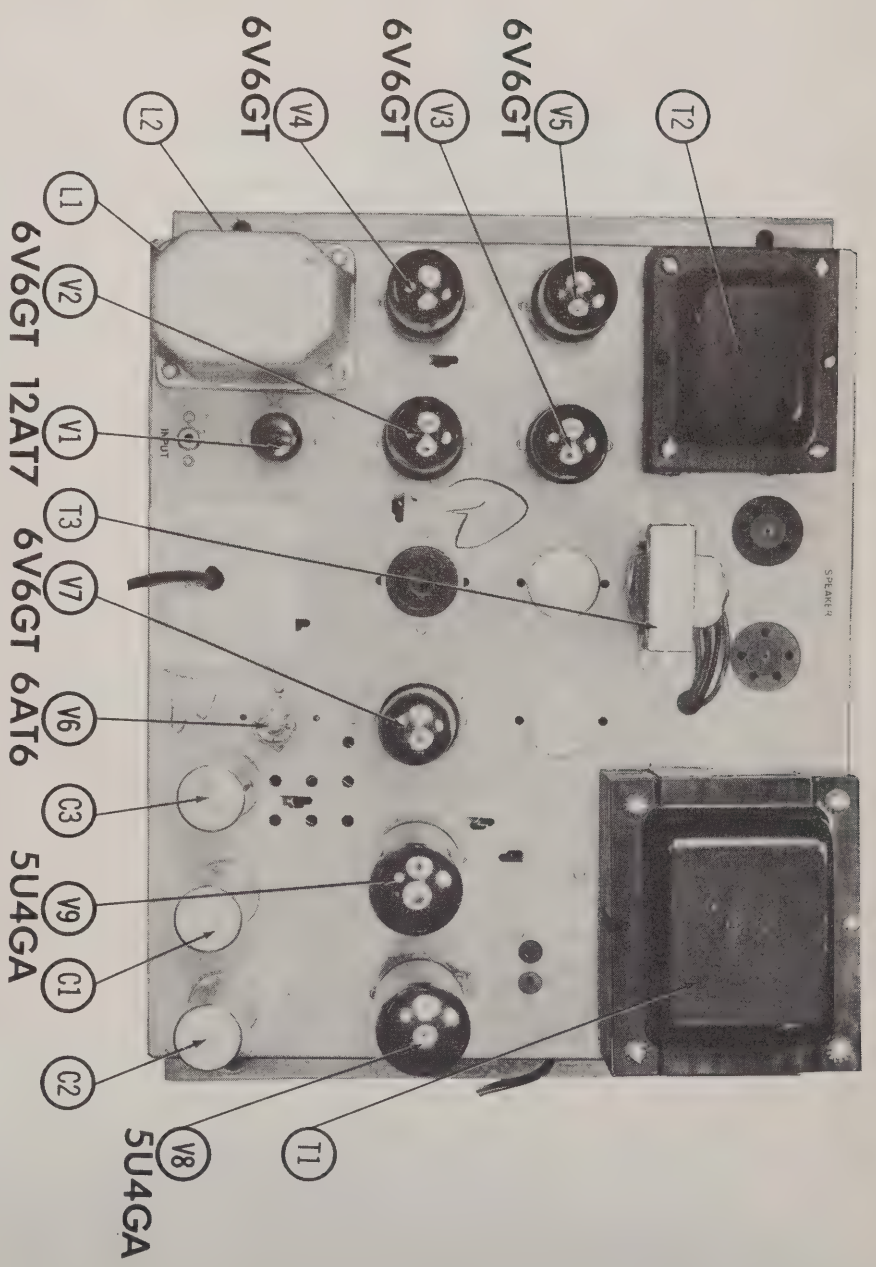
ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	.05	200	250753-1	BPD-05	DF-503	CUB2S5		GEM-215	GEM-215	
C6	.015	200	250212-1	BPD-015	DD16-153	CUB6S15	ED-015	GEM-6115	6TM-S15	
C7	.022	200	250202-9	BPD-02	DD-203	CUB6S22	ED-02	GEM-6122	6TM-S22	
C8	10000		250218-19	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C9	220		250218-5	BPD-0002	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C10	.1	600	250201-13	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C11	.1	600	250201-13	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C12	.015	200	250212-1	BPD-015	DD16-153	CUB6S15	ED-015	GEM-6115	6TM-S15	
C13	.033	200	250202-10	BPD-03		CUB6S33		GEM-6133	6TM-S33	
C14	10000		250218-19	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C15	220		250218-5	BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C16	10000		250218-19	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C17	220		250218-5	BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C18	10000	1000	250219-3	DAC-27	DD16-103	HVE16S1			BL-S10	
	10000	1000		DAC-27	DD16-103	HVE16S1			BL-S10	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	150K	½	220123-18	AB-44	A47-150K-Z	Q13-328	U42	Volume
B	Shaft			AK-7	FS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
D	Cover			KB-5				
R2	5000Ω	½	220126-64					Treble (Note 1)

Note 1. Alternate Part No. 220126-49 may be used in some versions.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MAGNAVOX PART No.	IRC PART No.	
R3	15K		230104-76	BTS-15K	
R4	100K		230104-86	BTS-100K	
R5	100K		230104-86	BTS-100K	
R6	1500Ω		230104-64	BTS-1500	
R7	5600Ω		230104-71	BTS-5600	
R8	220K		230104-90	BTS-220K	
R9	220K		230104-90	BTS-220K	
R10	220K		230104-90	BTS-220K	
R11	22K		230104-78	BTS-22K	
R12	220K		230104-90	BTS-220K	
R13	100Ω		230104-50	BTS-100	
R14	100Ω		230104-50	BTS-100	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MAGNAVOX PART No.	IRC PART No.	
R15	100Ω		230104-50	BTS-100	
R16	100Ω		230104-50	BTS-100	
R17	125Ω	10	240071-6	1 3/4A-125	
R18	15K	1	230105-76	BTA-15K	
R19	2200Ω		230104-66	BTS-2200	
R20	150K		230104-88	BTS-150K	
R21	1000Ω		230104-62	BTS-1000	
R22	15K		230104-76	BTS-15K	
R23	220K		230104-90	BTS-220K	
R24	270Ω	2	230106-1055	BTB-270	
R25	75Ω	10	240071-18	1 3/4A-75	
R26	8200Ω	1	230105-73	BTA-8200	

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ⓐ 1.36A	570VCT ⓐ .220A	5VAC ⓐ 6A	6.3VAC 2.9A	300086-1	P9739 ①	P-3055 ②	P-8167 ①	26R33 ③	R-61BC ④

① Tape 6.3V ⓐ 8.5A winding.
② Tape 6.3V ⓐ 10A winding.
③ Tape Low HV winding & 6.3V ⓐ 5A winding. Parallel and Phase 5V winding.
④ Tape 6.3V ⓐ 6A and 6.3V ⓐ 1.2A windings.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5600Ω CT	4Ω Tap ⓐ 3Ω	330024-1						Low Frequency Output
T3	2700Ω	16Ω Tap ⓐ 8Ω	330042-1	Z1104					High Frequency Output

COILS (RF-IF)

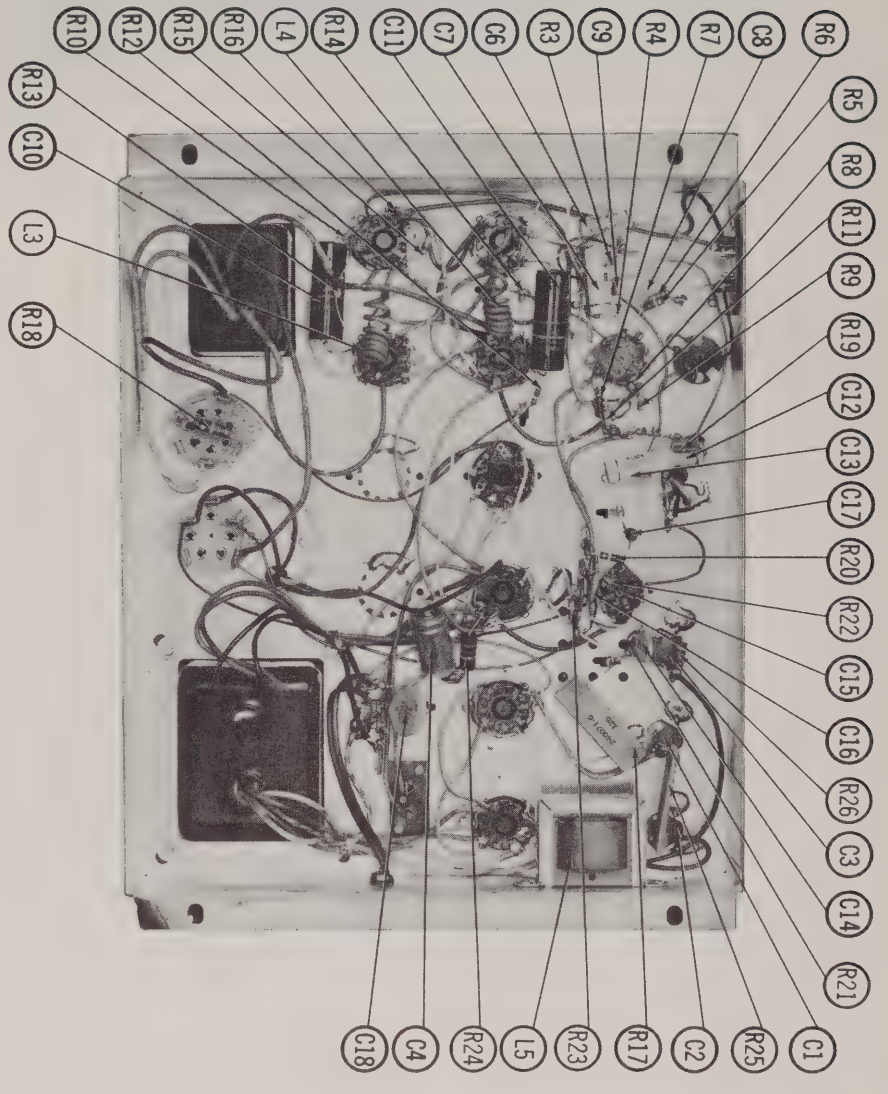
ITEM No.	USE	REPLACEMENT DATA				NOTES
		MAGNAVOX PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Cross-over Choke	360639-1				540 Millihenries
L2	Cross-over Choke	360639-1				540 Millihenries
L3	RF Choke	360575-1				1.2 Microhenry
L4	RF Choke	360575-1				1.2 Microhenry

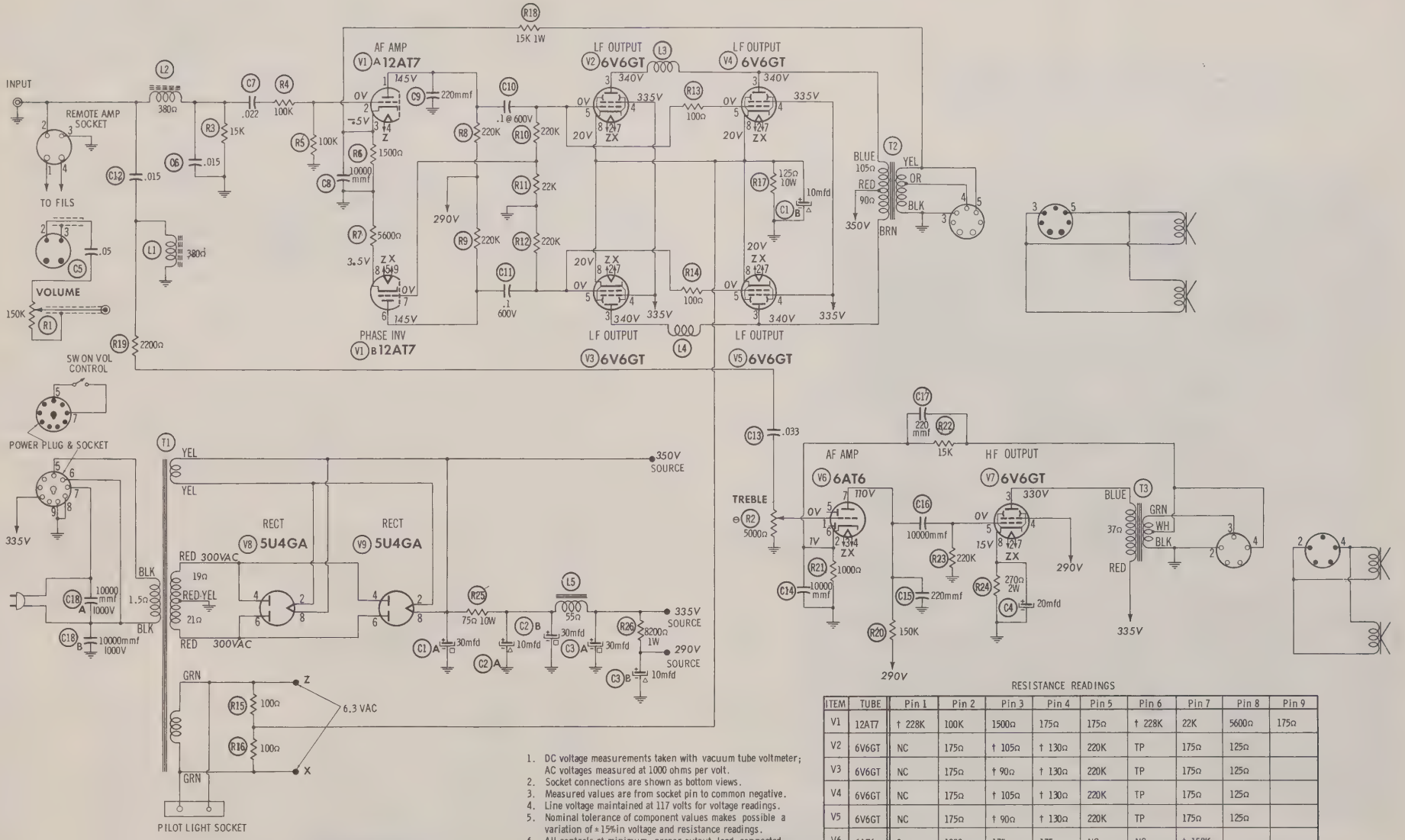
FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L5	.05A	55Ω	1Hy	320041-2	C5040		C-2327	26C44 ①	C-23X ①

① Drill one new mounting hole.

CHASSIS—BOTTOM VIEW





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

† MEASURED FROM PIN 8 OF V9.
NC NO CONNECTION.
TP TIE POINT.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AT7	† 228K	100K	1500Ω	175Ω	175Ω	† 228K	22K	5600Ω	175Ω
V2	6V6GT	NC	175Ω	† 105Ω	† 130Ω	220K	TP	175Ω	125Ω	
V3	6V6GT	NC	175Ω	† 90Ω	† 130Ω	220K	TP	175Ω	125Ω	
V4	6V6GT	NC	175Ω	† 105Ω	† 130Ω	220K	TP	175Ω	125Ω	
V5	6V6GT	NC	175Ω	† 90Ω	† 130Ω	220K	TP	175Ω	125Ω	
V6	6AT6	0Ω	1000Ω	175Ω	175Ω	NC	NC	† 158K		
V7	6V6GT	NC	175Ω	† 165Ω	† 8300Ω	220K	NC	175Ω	270Ω	
V8	5U4GA	NC	20K (MIN)	NC	19Ω	NC	21Ω	NC	20K (MIN)	
V9	5U4GA	NC	20K (MIN)	NC	19Ω	NC	21Ω	NC	20K (MIN)	

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

377-11

PHOTOFACT* Folder

*TRADE MARK

METEOR MODEL 7000 (Ch. 132.42000)

PROPERTY OF
L. F. BLANKENSHIP
3324 MEADE ST.
DENVER, COLORADO

METEOR MODEL
7000 (Ch. 132.42000)

METEOR MODEL
7000 (Ch. 132.42000)

TRADE NAME	Meteor Model 7000 (Ch. 132.42000)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Avenue, Chicago, Illinois
TYPE SET	AC-DC Operated AM Receiver
TUBES (Four)	Types 12BE6 Converter, 12AV6 Det. -AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC
RATING	.27 Amp.@ 117 Volts AC (26 Watts)
TUNING RANGE—BROADCAST	540KC - 1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	50MMF	High side to Antenna Connection. Low side to B-.	1600KC	"	"	A3	Remove antenna hank. Adjust for maximum output.
3.	"	"	1400KC	1400KC	"	A4	Adjust for maximum output.

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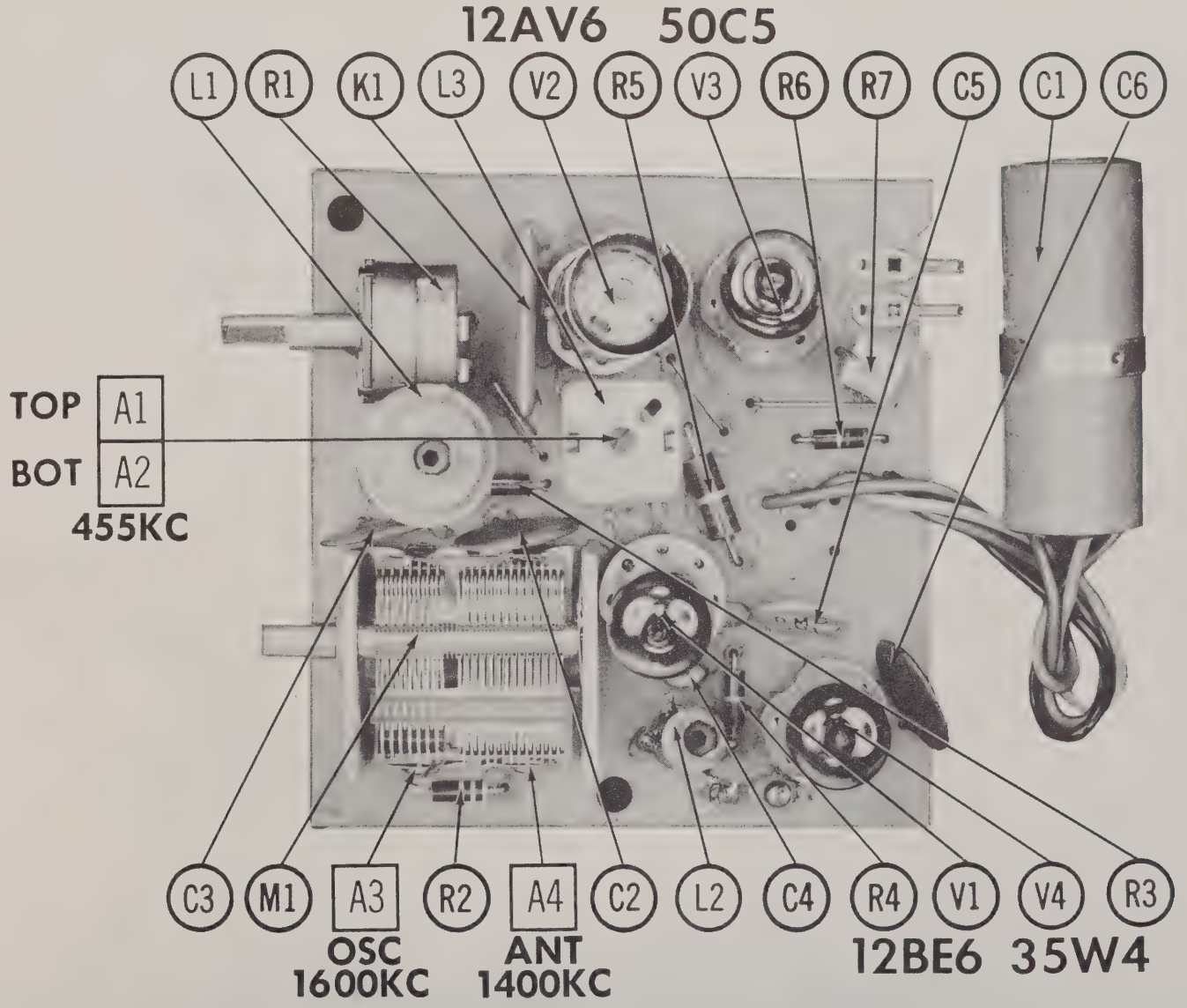
H214



CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	Det. -AVC- AF Amp.	12AV6	

ITEM No.	USE	TYPE	NOTES
V3	Output	50C5	
V4	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	METEOR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	44772-1	PRS150/25V 4020/20	BBRT4215C	TCT3114	TDLT-12	FMT-321	TVA-3423
B	20	150							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	METEOR PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	20000		43674-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C3	20000		43674-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C4	47		43957-8	BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C5	10000		43674-1	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C6	20000		43674-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	METEOR PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	1Meg	½	43613					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	METEOR PART No.	IRC PART No.	
R2	330K		43687-334	BTS-330K	
R3	3. 3Meg		43687-335	BTS-3. 3Meg	
R4	22K		43687-223	BTS-22K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	METEOR PART No.	IRC PART No.	
R5	2200Ω	1	43688-222	BTA-2200	
R6	120Ω		43689-121	BTS-120	
R7	47Ω	5	44448-2		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	METEOR PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2500Ω	3-4Ω	42700-11 ①	Z1101	A-3025	A-3332	24S53	S-12X	① Alternate Part #42700-14

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	METEOR PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	43096	4A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		METEOR PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	44132-1				
L2	Osc. Coil	43644-7				
L3	IF Trans.	44622-1				

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	METEOR PART No.	REPLACEMENT DATA
K1	Audio Coup. Net.	5000MMF, 220MMF, 5000MMF, 250MMF, 6. 8Meg, 470K, 470K	43743-2	Aerovox PA-512 Centralab PC-158 Sprague DT-5

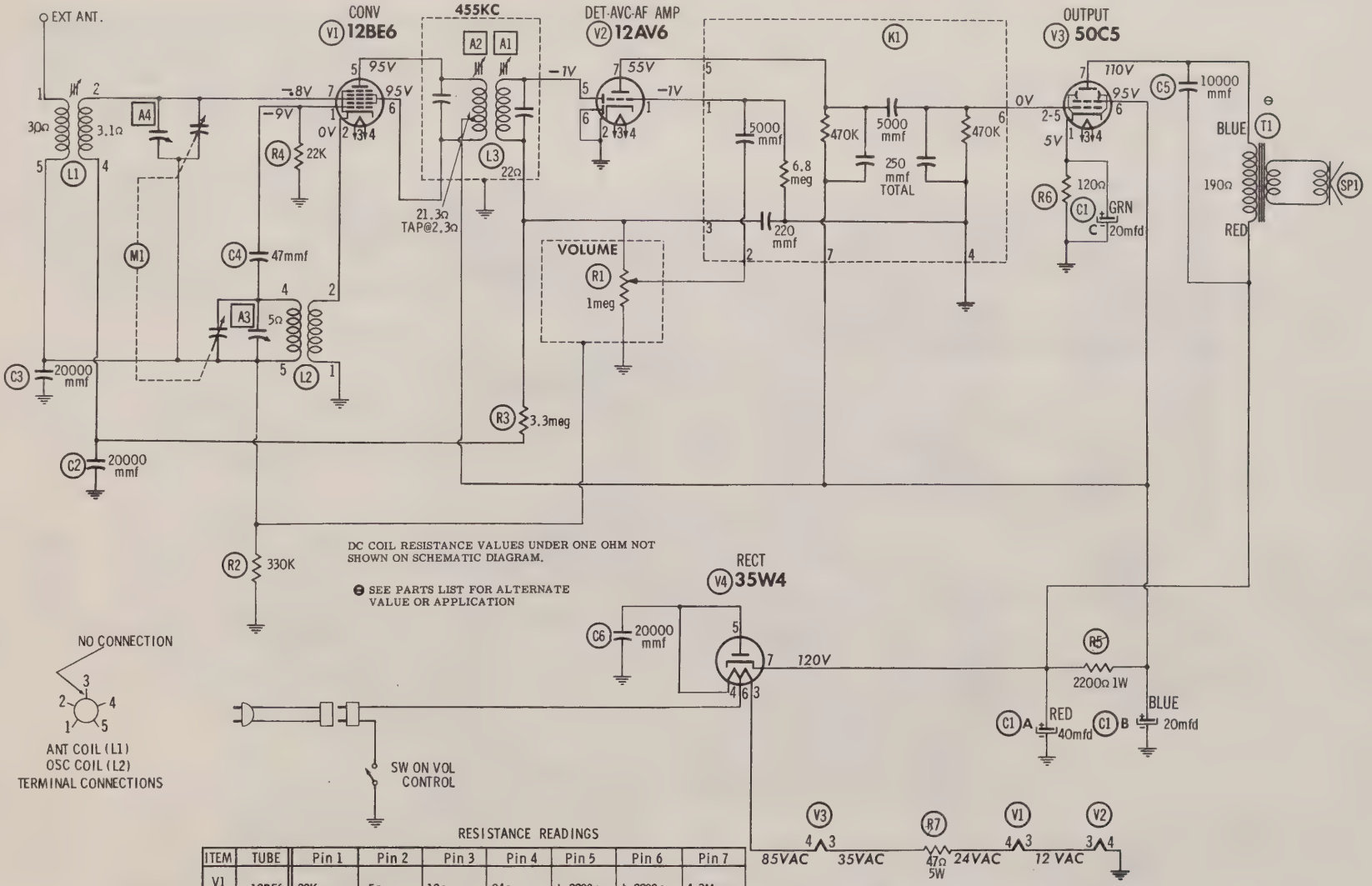
MISCELLANEOUS

ITEM No.	PART NAME	METEOR PART No.	NOTES
M1	Tuning Cap.	43614	2 Gang

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	43625-49	Volume, Gray
Knob	43626-49	Tuning, Gray
Cabinet	43642-49	Gray
Cabinet Back	43628-1	Includes Line Cord



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.5Ω	12Ω	24Ω	† 2200Ω	† 2200Ω	4.3Meg
V2	12AV6	6.8Meg	0Ω	12Ω	0Ω	1Meg	0Ω	† 470K
V3	50C5	120Ω	470K	71Ω	121Ω	470K	† 2200Ω	† 170Ω
V4	35W4	TP	TP	121Ω	156Ω	156Ω	145Ω	20K(MIN)

† MEASURED FROM PIN 7 OF V4.
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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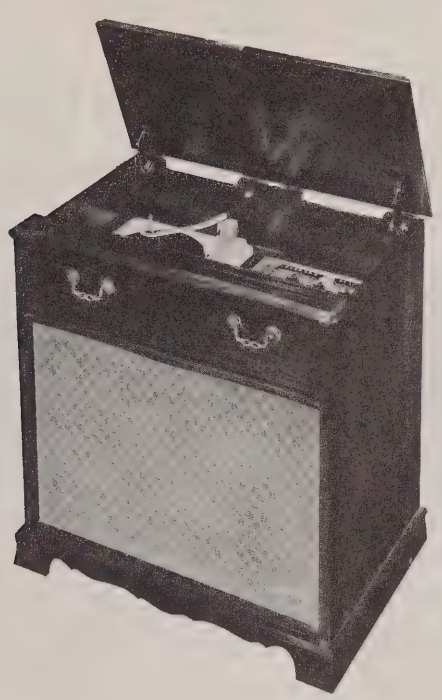
Howard W. Sams & Co., Inc. 1957

PHOTOFACT* Folder
*TRADE MARK

PACKARD-BELL MODELS 10RP2, 11RP2

PACKARD-BELL MODELS 10RP2, 11RP2



PROPERTY OF
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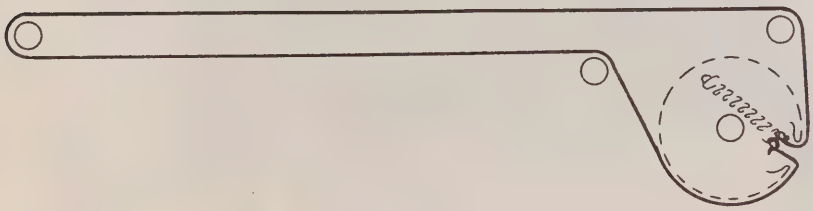
3924 MEADE ST.
DENVER, COLORADO

PACKARD-BELL MODELS 10RP2, 11RP2

TRADE NAME	Packard-Bell Models 10RP2, 11RP2	
MANUFACTURER	Packard-Bell Co., Service Div., 11th & Hope Sts., Los Angeles 15, California	
TYPE SET	AC Operated FM-AM Receiver With 4 Speed Automatic Record Changer	
TUBES	Eleven	
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING .63 Amp. @ 117 Volts AC (67 Watts)
TUNING RANGE-BROADCAST	530-1620KC	FREQ. MOD. 88-108MC

FOR SERVICE INFORMATION ON RECORD CHANGER PART #58059 — SEE SIMILAR V-M MODEL 1200A — PHOTOFACT SET 353 FOLDER 16.



TUNING GANG FULLY CLOSED

DIAL CORD STRINGING

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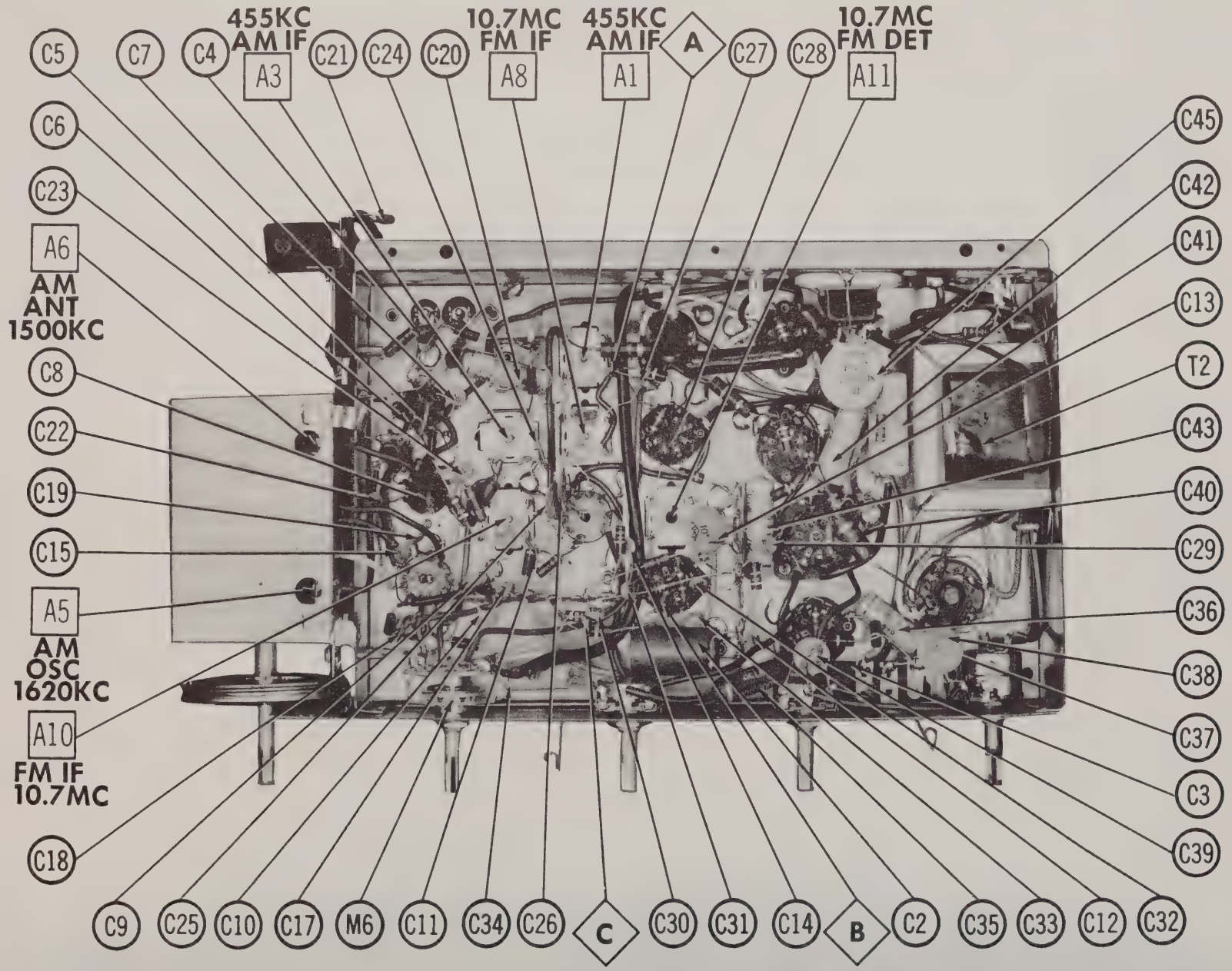
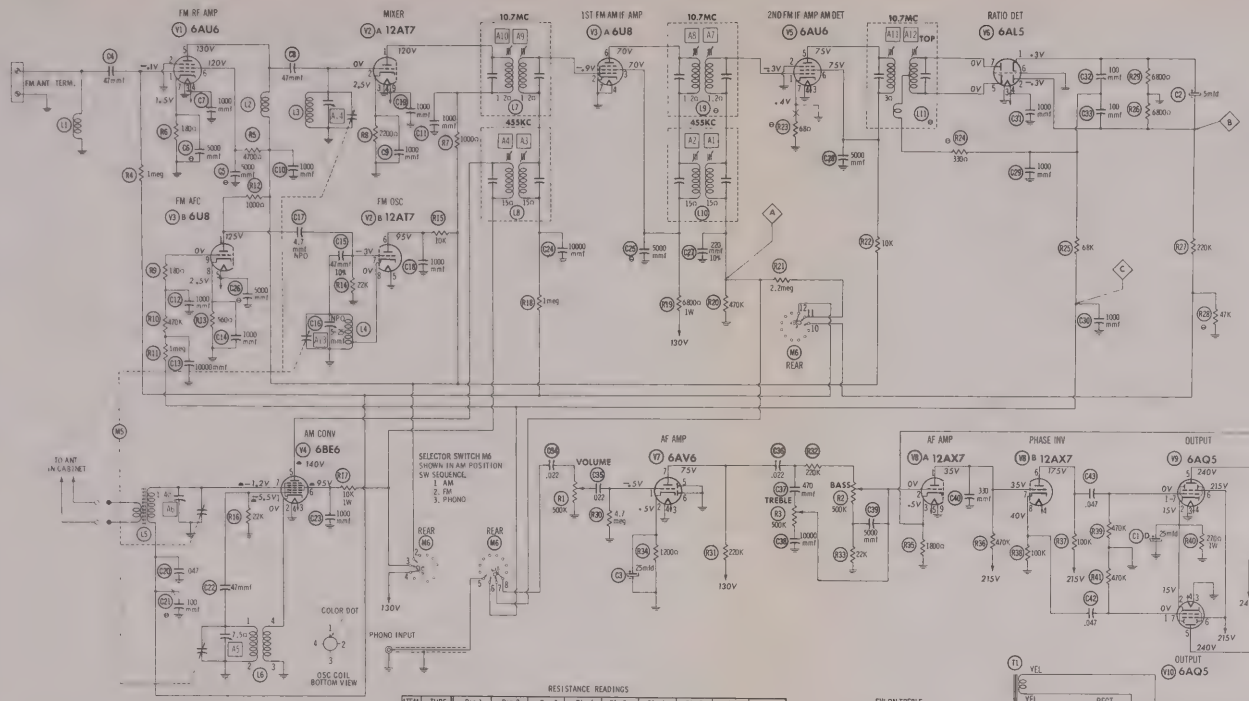


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PACKARD-BELL
MODEL 10RP2

FOLDER 13



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AU6	1Meg	0Ω	0Ω	.1Ω	↑ 350Ω	↑ 800Ω	180Ω		
V2	12AT7	↑ 450Ω	0Ω	220Ω	0Ω	0Ω	↑ 12K	22K	0Ω *	.1Ω
V3	6U8	↑ 450Ω	1Meg	↑ 10K	0Ω	.1Ω	↑ 10K	0Ω	560Ω	INF
V4	6BE6	22K	.6Ω	.1Ω	0Ω	↑= 350Ω	↑= 13K	≈2.6Meg		
V5	6AU6	470K	0Ω	.1Ω	0Ω	↑ 13K	↑ 13K	68Ω		
V6	6AL5	68000Ω	68000Ω	0Ω	1Ω	INF	0Ω	INF		
V7	6AV6	4.7Meg	1200Ω	1Ω	0Ω	0Ω	0Ω	↑ 220K		
V8	12AX7	↑ 470K	22K	1800Ω	1Ω	1Ω	↑ 100K	↑ 470K	100K	0Ω
V9	6AQ5	470K	270Ω	0Ω	1Ω	↑ 140Ω	↑ 1000Ω	470K		
V10	6AQ5	470K	270Ω	0Ω	1Ω	↑ 140Ω	↑ 1000Ω	470K		
V11	5Y3GT	NC	20KGMin)	NC	100Ω	NC	110Ω	NC	20KGMin)	

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
* MEASURED IN "AM" POSITION
↑ MEASURED FROM PIN 2 OF V11
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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377-13

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 6BE6 (V4). Low side to chassis.	455KC (400~ Mod.)	AM	Tuning gang fully closed.	DC probe to point (A). Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.		Loop	1620KC	"	Tuning gang fully open.	"	A5	"
3.		"	1500KC	"	Tune to 1500KC signal.	"	A6	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	10.7MC (Unmod.)	FM	Tuning gang fully closed.	DC probe to point (B). Common to chassis.	A7, A8, A9, A10, A11	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe to point (C). Common to chassis.	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	10.7MC (450KC Swp.)	FM	Tuning gang fully closed.	Vert. amp. to point (B). Low side to chassis.	A7, A8, A9, A10, A11	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. amp. to point (C). Low side to chassis.	A12	Reconnect stabilizing capacitor C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A11 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	2 150Ω carbon resistors.	To FM antenna terminals with 150Ω in each lead.	106MC (Unmod.)	FM	Tune to 106MC signal.	DC probe to point (B). Common to chassis.	A13, A14	Adjust for maximum deflection.
7.	"	"	92MC	"	Tune to 92MC signal.	"	L3, L4	Adjust for maximum deflection by expanding or compressing coil turns. Repeat steps 6 & 7 until no further increase is noticed.

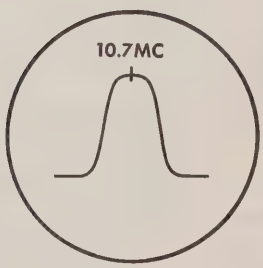


FIG. 1

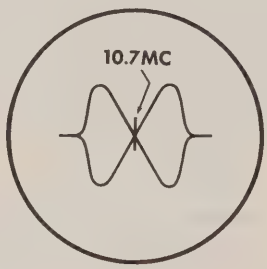


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amplifier	6AU6	
V2	FM Mixer - FM Osc.	12AT7	
V3	FM AFC-1st FM AM IF Amplifier	6U8	
V4	AM Converter	6BE6	
V5	2nd FM IF Amp. -AM Det.	6AU6	
V6	Ratio Detector	6AL5	
V7	AF Amplifier	6AV6	
V8	AF Amp. -Phase Inv.	12AX7	
V9	Output	6AQ5	
V10	Output	6AQ5	
V11	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Packard-Bell PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■40	350	24092	AFH4-52	D0430	FP447.5	TMQ-57	Q-210 MT-4520	TVL-4621.6
B	▬40	350							
C	▲20	350							
D	25	25							
C2	5	50	24038	PRS50V5	BBR5-50	TC30	TD-5-50	MT-1504	TVA-1303
C3	25	25	24006A	PRS25V25	BBR25-25	TC26	TD-25-25	MT-0225	TVA-1205

FIXED CAPACITORS

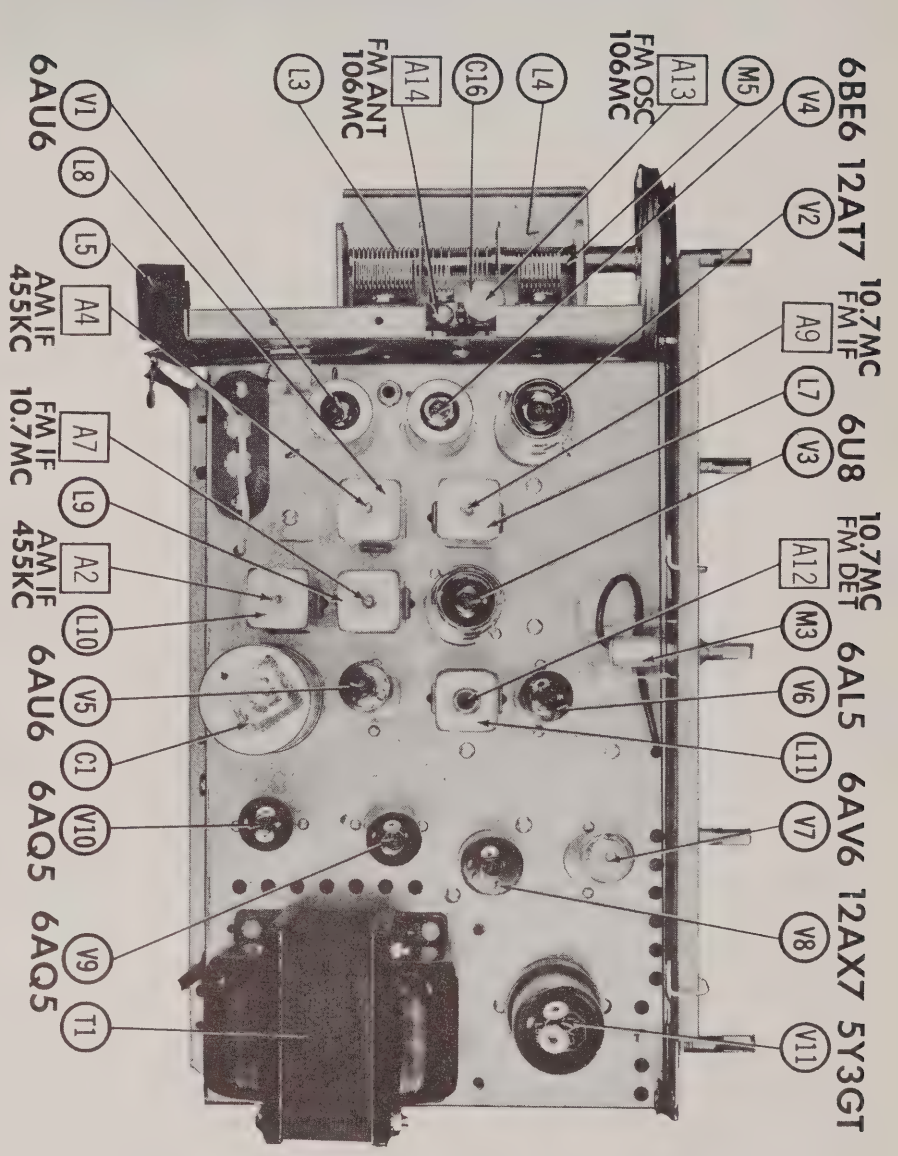
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Packard-Bell PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	47		23912	BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C5	5000		23931	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	①
C6	5000		23931	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	①
C7	1000		23860	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C8	47		23912	BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C9	1000		23860	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C10	1000		23860	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C11	1000		23860	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C12	100		23914	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C13	10000		23939	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C14	1000		23860	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C15	47		23912	NP0-SI 47	DD-470	L10Q47	ED-47	ZT-5447	5TCC-Q47	10%
C16	5-25		23428							NP0
C17	4.7		23978	NP0-SI 4.7	TCZ-4R7	C10V47C	TCO-4.7	ZT-5547	5TCCB-V47	NP0
C18	1000		23860	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C19	1000		23860	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C20	.047	200	23105	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C21	100		23914	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	②
C22	47		23912	BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C23	1000		23860	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C24	10000		23939	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C25	5000		23931	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	①
C26	5000		23931	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	①
C27	220		23915		DD-221	L10T22	ED-220			10%
C28	5000		23931	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C29	100		23914	BPD-0001	DD-101	L10T1	ED-100	DC531	5GA-T1	
C30	1000		23860	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C31	1000		23860	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C32	100		23914	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C33	100		23914	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C34	.022	200	23103	P288N-022	DD-203	CUB4S22	ED-02	GEM-4122	2TM-S22	
C35	.022	200	23103	P288N-022	DD-203	CUB4S22	ED-02	GEM-4122	2TM-S22	
C36	.022	400	23122	P488N-022	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C37	470		23916	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C38	10000		23939	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C39	5000		23931	BPD-005	DD-502	BYA6D5	ED-005	DC525	5HK-D5	
C40	330		23944	BPD-00033	DD-331	L10T33	ED-330	UC-5333	5GA-T33	
C41	.15	200	23108	P288N-15		CUB2P15		GEM-2015	2TM-P15	
C42	.047	400	23124	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C43	.047	400	23124	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C44	1.0	100	23040	P488N-1.0		CUB2W1		GEM-21	2TM-M1	
C45A	10000	900	23982A		DD-1032					
B	10000	VAC			DD-1032					

① Part of a dual 4000MMF unit in original production.

② Not used in some versions.

CHASSIS—TOP VIEW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FM OSC 106MC
FM ANT 106MC
AM IF 455KC
FM IF 10.7MC
AM IF 455KC
6AU6 6AU6 6AQ5 6AQ5
V1 V2 V3 V4 V5 V6 V7 V8 V9 V10 V11
L3 C16 L4 L5 L7 L8 L9 L10 L11
A13 A14 A4 A9 A7 A2 A12
M5 M3 C1 T1

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Packard-Bell PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	25038	B-60	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	500K	½	25038	B-60	A47-500K-Z	Q13-133	U48	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	500K	½	25039	B-60	A47-500K-Z	Q13-133	U48	Treble
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Packard-Bell PART No.	IRC PART No.	
R4	1Meg		73161	BTS-1Meg	
R5	4700Ω		73033	BTS-4700	
R6	180Ω		73016	BTS-180	
R7	1000Ω		73025	BTS-1000	
R8	2200Ω		73029	BTS-2200	
R9	180Ω		73016	BTS-180	
R10	470K		73157	BTS-470K	
R11	1Meg		73161	BTS-1Meg	
R12	1000Ω		73025	BTS-1000	
R13	560Ω		73022	BTS-560	
R14	22K		73041	BTS-22K	
R15	10K		73037	BTS-10K	
R16	22K		73041	BTS-22K	
R17	10K	1	73237	BTA-10K	
R18	1Meg		73161	BTS-1Meg	
R19	6800Ω	1	73235	BTA-6800	
R20	470K		73157	BTS-470K	
R21	2.2Meg		73165	BTS-2.2Meg	
R22	10K		73037	BTS-10K	
R23	68Ω		73011	BTS-68	
R24	330Ω		73019	BTS-330	Note 1

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Packard-Bell PART No.	IRC PART No.	
R25	68K		73047	BTS-68K	
R26	6800Ω		73035	BTS-6800	
R27	220K		73153	BTS-220K	
R28	47K		73045	BTS-47K	Note 2
R29	6800Ω		73035	BTS-6800	
R30	4.7Meg		73169	BTS-4.7Meg	
R31	220K		73153	BTS-220K	
R32	220K		73153	BTS-220K	
R33	22K		73041	BTS-22K	
R34	1200Ω		73026	BTS-1200	
R35	1800Ω		73028	BTS-1800	
R36	470K		73157	BTS-470K	
R37	100K		73049	BTS-100K	
R38	100K		73049	BTS-100K	
R39	470K		73157	BTS-470K	
R40	270Ω	1	73218	BTA-270	
R41	470K		73157	BTS-470K	
R42	6800Ω		73035	BTS-6800	
R43	6800Ω		73035	BTS-6800	
R44	1000Ω	2	73425	BTB-1000	
R45	2500Ω	10	73637	PW10-2500	

Note 1. Some versions use 68Ω in this application (Part #73011).
Note 2. Some versions use 100K in this application (Part #73049).

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	Packard-Bell PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .63A	475VCT @ .075A	5VAC @ 2A	6.3VAC @ 3.75A	89055	P9206		PC8404		R-10A

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Packard-Bell PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7200Ω CT	6-8Ω	89460	Z1007 ①	A-2904①	A-3870	22S58	S-55X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Packard-Bell PART No.	QUAM PART No.	
SP1	12"	PM	6-8Ω	83807 ①	12A10PA	① Used in Model 11RP2
SP2	5"	PM	6-8Ω	83212 ①	5A1Z8.8	② Used in Model 10RP2
SP3	5"	PM	6-8Ω	83211 ①	5A1Z9.2	
	10"	PM	6-8Ω	83708 ②	10A6A	
	4"	PM	6-8Ω	83111 ②	4A07T	
	4"	PM	6-8Ω	83110 ②	4A07T	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		Packard-Bell PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	RF Choke	29124	19-1000	BC-561	4602	1 Microhenry
L2	RF Choke	29124	19-1000	BC-561	4602	1 Microhenry
L3	FM RF Coil	29118				
L4	FM Osc. Coil	29221				
L5	Loop Stick	29352A				
L6	AM Osc. Coil	29229B	14-1077	BC-393		
L7	1st FM IF	29071	16-3487	FM-254	1463	
L8	1st AM IF	29066	16-6758	BC-352	12-C1	
L9	2nd FM IF	29072	16-3487	FM-254	1463	
	2nd FM IF	29071	16-3487	FM-254	1463	Alternate Part No.
L10	2nd AM IF	29067	16-6758	BC-353	12-C2	
L11	Ratio Det.	29084	17-3498	FM-255	1465	
	Ratio Det.	29073	17-3498	FM-255	1465	Alternate Part No.

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	Packard-Bell PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1	63034	55T or *81-TB	GD-J	56	PT-1	* Plug in permanent needle cartridge (includes mounting mechanism)

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	Packard-Bell PART No.	JENSEN PART No.	WALCO PART No.	
M2		† S-66 or †♦ S-66SD or ♦ S-66D	† W-75TPS or †♦ W-75DS or ♦ W-75TPD	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	Packard-Bell PART No.	NOTES
M3	Dial Light	54006	#51
M4	Lamp	54002	#47 (Phono Compartment)
M5	Tuning Cap.	23547A	(AM-FM) 4 Gang (AM Sections: Ant. 22-490MMF, Osc. 15-195MMF)
M6	Switch	86048A	AM-FM-Phono (Rotary Wafer Type)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	52116AC	On-Off-Volume, Tuning
Knob	52117AC	Bass, Treble, Band Switch
Dial Glass	38158	Model 11RP2
Dial Glass	38154	Model 10RP2
Dial Pointer	67041	Two Used

RETMA MEMBER

PILOT MODEL AA-903B

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

PILOT MODEL AA-903B

PILOT MODEL AA-903B

TRADE NAME	Pilot Model AA-903B		
MANUFACTURER	Pilot Radio Corp., 37-06 36th St., Long Island City 1, N. Y.		
TYPE SET	AC Operated 5 Channel Audio Amplifier		
TUBES (Six)	Types 12AX7 Phono Preamplifier, 12AX7 AF Amplifier, 12AX7 AF Amp. - Phase Inv., (2) EL84 (or) 6BQ5 Output, EZ81 (or) 6CA4 Rectifier		
POWER SUPPLY	105-120 Volts AC-60 Cycles	RATING	.72 Amp. @ 117 Volts AC (71 Watts)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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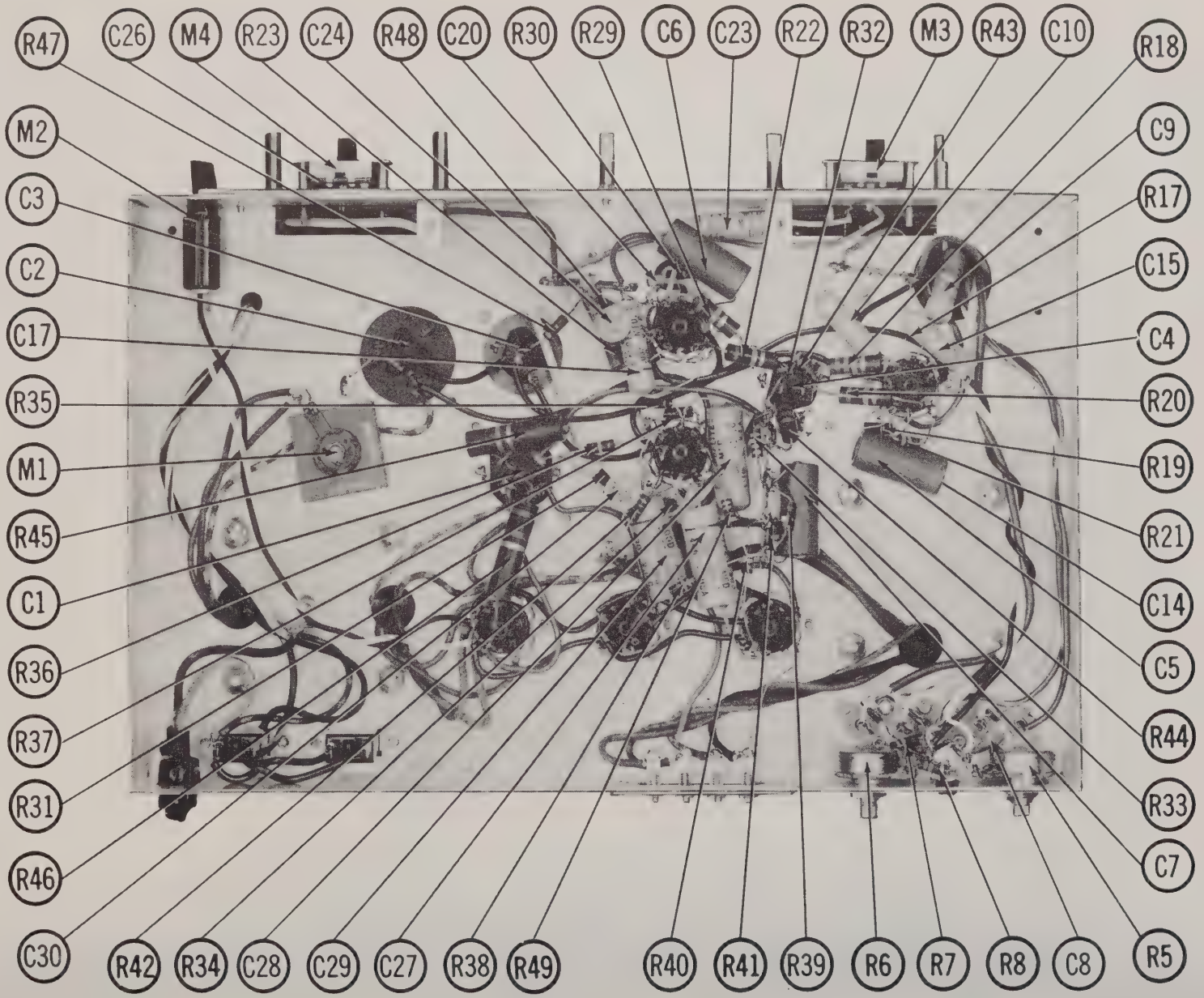


CHASSIS-BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Phono Preamplifier	12AX7	
V2	AF Amplifier	12AX7	
V3	AF Amp. - Phase Inv.	12AX7	
V4	Output	EL84	Note 1
V5	Output	EL84	Note 1
V6	Rectifier	EZ81	Note 2

Note 1. Alternate Type 6BQ5

Note 2. Alternate Type 6CA4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA PILOT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲20	350	24-153	AFH4-14	D0130	FP444	TMQ-12	Q-040	TVL-4763
B	■20	350							
C	▲20	350							
D	20	350							
C2	500	25	24-152	AFH1-08	A0120	WP057	TMS-10	S-040	TVL-1220
C3	100	25	24-154	AFH1-21	XA0241	WP055	TMS-9	S-035	TVL-1423
C4A	▲10	350	24-151	AFH3-28	C0220	FP259	TMT-28	S-215	TVL-3639.7
B	■40	350						MT-4510	
C5	25	25	24-50	PRS25V25	BBR25-25	TC26	TD-25-25	MT-0225	TVA-1205
C6	25	25	24-50 ①	PRS25V25	BBR25-25	TC26	TD-25-25	MT-0225	TVA-1205
C7	25	25	24-50	PRS25V25	BBR25-25	TC26	TD-25-25	MT-0225	TVA-1205

① Not used in some versions.

FIXED CAPACITORS

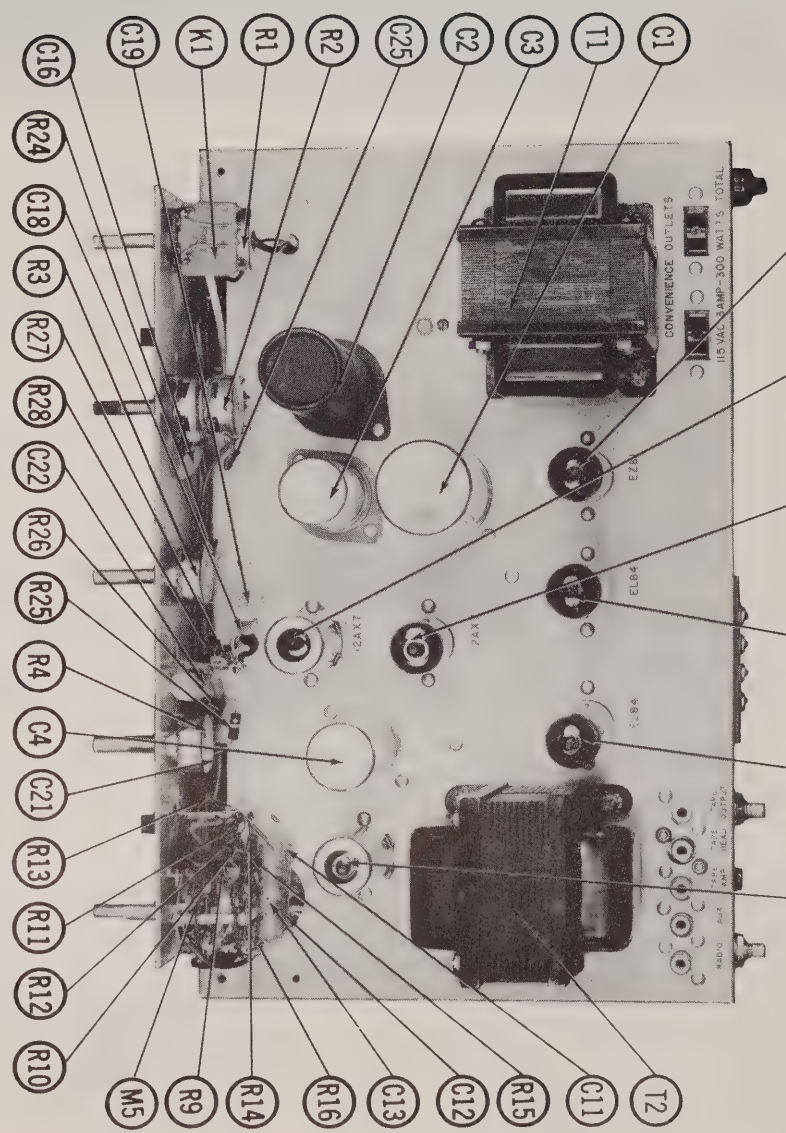
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA PILOT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C8	250									N1500 10%
C9	.033	400		BPD-03	DF-303	CUB6S33		GEM-4133	6TM-S33	
C10	.022	400		BPD-02	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C11	.0051	400		BPD-005	D6-502	CUB6D5	GP-5000	GEM-625	6TM-D5	
C12	.033	400		BPD-03	DF-303	CUB6S33		GEM-4133	6TM-S33	
C13	.022	400		BPD-02	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C14	800			BPD-0008	DD-801	L10T8			5GA-T8	
C15	.022	400		BPD-02	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C16	250									N1500 10%
C17	.033	400		BPD-03	DF-303	CUB6S33		GEM-4133	6TM-S33	
C18	50				TCN-50	C10Q5U	TC7-50			N750 10%
C19	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C20	6.8			NP0-SI 6.8	TCZ-6R8	C10V68C	TCO-6.8	ZT-5568	5TCCB-V68	
C21	1200				D6-122	L10D12	ED-0012	UC-5212	5GA-D12	
C22	.047	400		BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C23	.033	400		BPD-03	DF-303	CUB6S33		GEM-4133	4TM-S33	
C24	1500			1464-0015		1R5D15			MS-215	10%
C25	100			BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C26	1500			1464-0015		1R5D15			MS-215	10%
C27	.1	400		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C28	.1	200		P488N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C29	.1	400		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C30	150			N750-SI 150	TCN-150	C10T15U	TC7-150		5TCU-T1	N750 10%

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA PILOT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	36-66	C170S				Loudness, Tap ② 400K & 750K
B	Switch							
R2A	500K	½	36-65					Volume, Tap ② 350K
B	1Meg	½						Volume, Tap ② 750K
R3A	5Meg	½	37-35	B-87	A47-5Meg-S	Q11-141	U67	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	5Meg	½	37-35	B-87	A47-5Meg-S	Q11-141	U67	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R5A	1Meg	½	39-41	ABT-74	A47F5-1Meg	Q19-137X	UT-443	Phono Level, Tap ② 500K
B	Shaft			AK-1	FKS-1/4	Not Req.	Not Req.	
R6A	100K	½	39-32	B-40	A47-100K-S	Q11-128	U41	Phono Load
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA PILOT PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R7	100K			BTS-100K	
R8	6800Ω			BTS-6800	
R9	27K 5%			BTS-27K 5%	
R10	220K 5%			BTS-220K 5%	
R11	68K 5%			BTS-68K 5%	
R12	82K 5%			BTS-82K 5%	
R13	330K			BTS-330K	
R14	8200Ω 5%			BTS-8200 5%	
R15	100K 5%			BTS-100K 5%	
R16	82K 5%			BTS-82K 5%	
R17	2.2Meg			BTS-2.2Meg	
R18	68K	1		BTA-68K	
R19	2.2Meg			BTS-2.2Meg	
R20	82K	1		BTA-82K	
R21	3300Ω			BTS-3300	
R22	82K	1		BTA-82K	
R23	2200Ω	1		BTA-2200	
R24	220K			BTS-220K	
R25	220K 5%			BTS-220K 5%	
R26	150K			BTS-150K	
R27	4700Ω 5%			BTS-4700 5%	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA PILOT PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R28	100K 5%			BTS-100K 5%	
R29	82K	1		BTA-82K	
R30	2200Ω			BTS-2200	
R31	100K 5%			BTS-100K 5%	
R32	220K			BTS-220K	
R33	39K			BTS-39K	
R34	2200Ω			BTS-2200	
R35	1Meg			BTS-1Meg	
R36	100K 5%			BTS-100K 5%	
R37	1500Ω			BTS-1500	
R38	270K			BTS-270K	
R39	100K			BTS-100K	Note 1
R40	270K 5%			BTS-270K 5%	
R41	12K 5%			BTS-12K 5%	
R42	6800Ω			BTS-6800	
R43	15K			BTS-15K	
R44	27K	1		BTA-27K	
R45	22K	2		BTB-22K	
R46	100Ω	2		BTB-100	
R47	270Ω			BTS-270	
R48	270Ω			BTS-270	
R49	47K			BTS-47K	

Note 1. Not used in some versions.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA PILOT PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .72A	540VCT @ .108A	6.3VCT @ 2.5A	32VCT @ 320A	55-58					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA PILOT PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	7300Ω CT	16Ω Tap @ 8Ω, 4Ω	56-51	Z1405 ①			22S66 ①	S-24A ①	① Fabricate mounting

PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

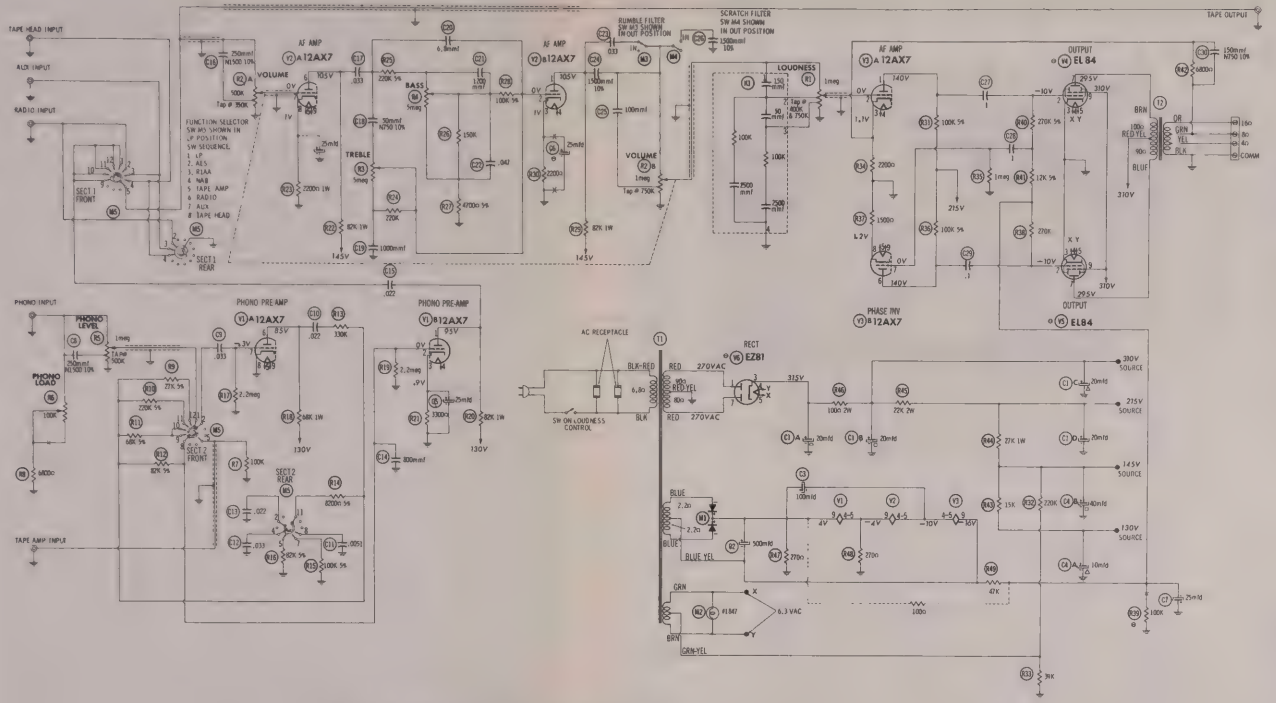
ITEM No.	USE	DESCRIPTION	PILOT PART No.	REPLACEMENT DATA
K1	Tone Compensation	150MMF, 50MMF, 2500MMF, 2500MMF, 100K, 100K		Centralab PC-325

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA PILOT PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.320A	110-519	1017	CIB	604B	

MISCELLANEOUS

ITEM No.	PART NAME	PILOT PART No.	NOTES
M2	Pilot Light	68-10	#1847
M3	Switch	101-41	Rumble Filter (Slide Type SPST)
M4	Switch	101-41	Scratch Filter (Slide Type SPST)
M5	Switch	100-115	Selector (Rotary Wafer Type)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	↑ 145K	2.2Meg	330Ω	135Ω	135Ω	↑ 135K	2.2Meg	0Ω	135Ω
V2	12AX7	↑ 130K	100K	220Ω	135Ω	135Ω	↑ 130K	0Ω	220Ω	135Ω
V3	12AX7	↑ 125K	0Ω	220Ω	135Ω	135Ω	↑ 125K	1Meg	150Ω	135Ω
V4	EL84	NC	380K	0Ω	35K	35K	NC	↑ 200Ω	NC	↑ 100Ω
V5	EL84	NC	370K	0Ω	35K	35K	NC	↑ 190Ω	NC	↑ 100Ω
V6	EZ81	90Ω	NC	20MΩ(inf)	35K	35K	NC	80Ω	NC	NC

ALL MEASUREMENTS TAKEN IN "LP" POSITION
↑ MEASURED FROM PIN 3 OF V6
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

PHOTOFACT* Folder

*TRADE MARK

RCA VICTOR MODEL 6-HFT-1
(TR-1, TR-1A)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

RCA VICTOR MODEL 6-HFT-1
(TR-1, TR-1A)

RCA VICTOR MODEL 6-HFT-1
(TR-1, TR-1A)

GENERAL INFORMATION

The RCA Models TR-1 and TR-1A are mechanically and electrically alike except in the volume control connections. In Model TR-1 the volume control is used for recording level only, while in the Model TR-1A the volume control is used during both recording and playback operation.

These models are recording and pick-up units only and have to be connected to an amplifier and speaker system to reproduce the recorded material. Two track recording is employed thus extending the playing time of a reel of recorded tape. Recordings may be made at speeds of 3 3/4 inches per second or 7 1/2 inches per second.

Using both tracks of the tape the recording time is as follows:

Size Reel	3 3/4" Speed	7 1/2" Speed
5" reel (600 ft.)	1 hour	1/2 hour
7 1/2" reel (1200 ft.)	2 hours	1 hour

The RCA Models TR-1 and TR-1A are designed to operate on 115VAC, 60 cycle only.

SUPPLIED BY:

RADIO CORPORATION OF AMERICA
RCA VICTOR RADIO AND "VICTROLA" DIVISION
CAMDEN 8, NEW JERSEY

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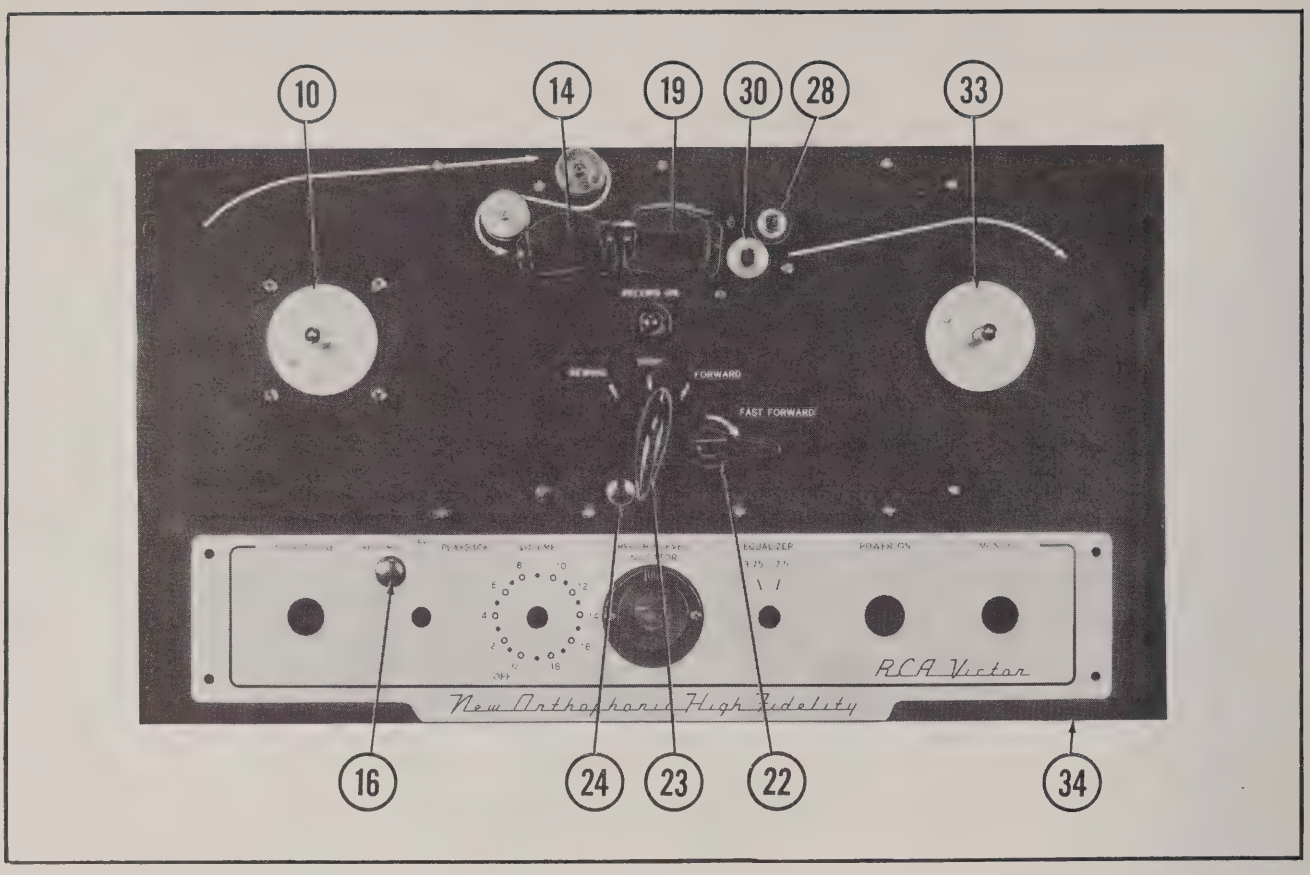

FIGURE 1

SPECIFICATIONS

Power Consumption:

90 watts at 115V., 60 cy.

Recording Speeds:

3 3/4" per second.
7 1/2" per second.

Rewind Speed:

7" reel (1200 ft.) — 40 seconds.

Frequency Response:

3 3/4 i.p.s. — 50 c.p.s. to 5000 c.p.s. ± 2 db.
7 1/2 i.p.s. — 50 c.p.s. to 10000 c.p.s. ± 2 db.

Flutter:

Less than 0.3%.

Input:

Microphone - high impedance.
Radio/ Phono - high impedance.

Output:

High impedance — (Combined with "Radio/ Phono" input).

OPERATING INSTRUCTIONS

Threading The Tape:

1. Insert the power cord into a receptacle of the proper rating.

2. Set control knob (23) in the "Stop" position.

3. Remove reel retaining knobs (9) on spindles by pushing down and turning counter-clockwise.

4. Place a reel of tape on the left hand spindle and an empty reel on the right hand spindle.

5. Pull off about two feet of tape and thread it around the top tape guide roller, then around the lower guide roller, over the erase head, between the shield and record-playback head, between the capstan and pressure roller, and then thread on the right hand (empty) reel, and wind at least two full turns of tape on to this reel.

Changing Speed:

Two sets of capstan pressure roller combinations are provided with the unit. These are designated as follows:

3 3/4" per second — The smallest metal capstan and largest rubber roller.

7 1/2" per second — The largest metal capstan and smallest rubber roller.

To change speed unscrew the knurled thumb screws and remove the capstan and pressure roller. Be certain that the capstan and rubber pressure roller are absolutely clean before attempting to put them on. If dirt gets under the capstan it will not run true and will result in WOW and flutter.

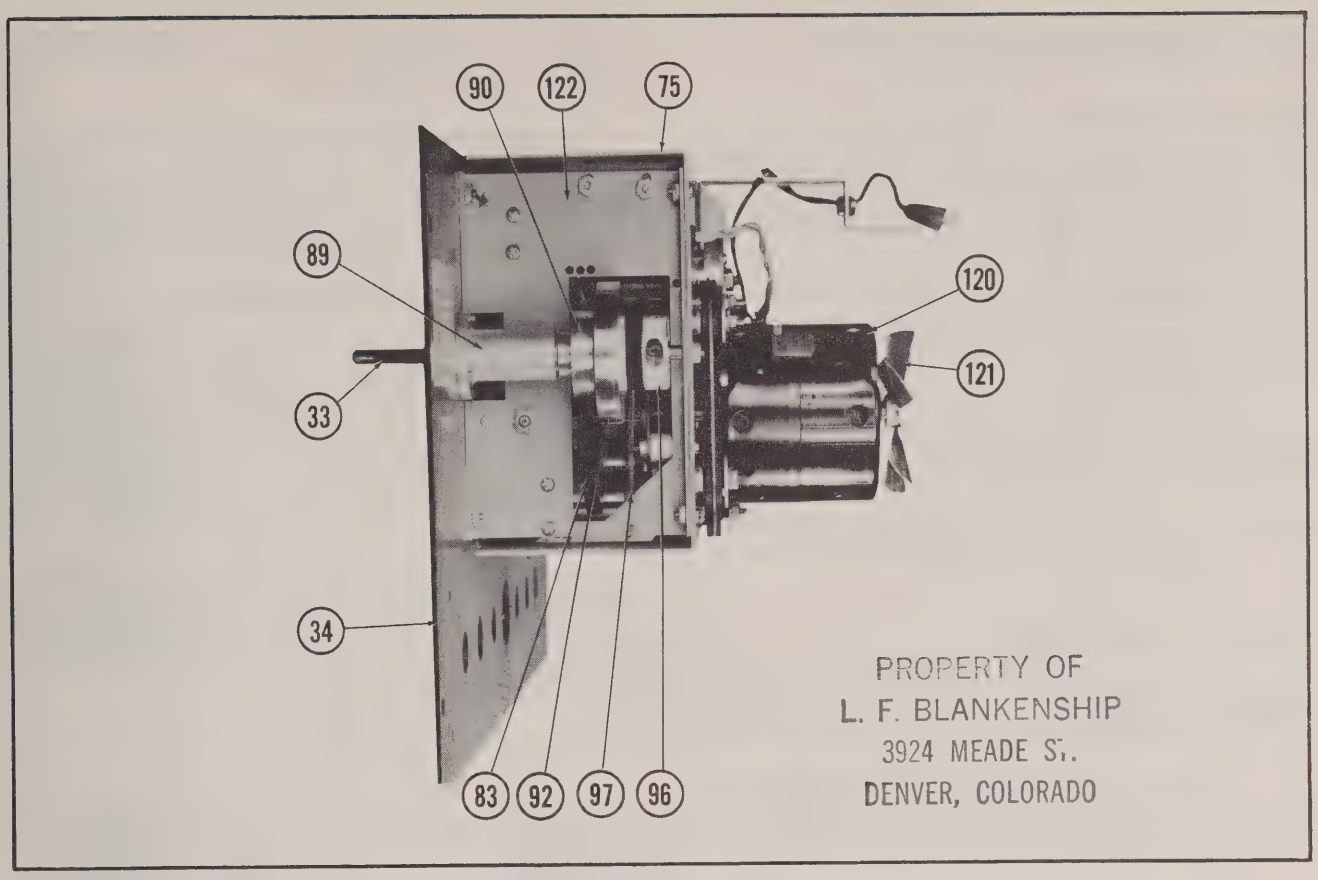

FIGURE 2

NOTE: Always use the longest of the two screws on the metal capstan.

To Make A Recording:

1. Select and install capstan and pressure roller for desired speed.

2. Load tape as described under "Threading the Tape".

3. Turn on the amplifier by turning the volume control switch until a click is heard.

4. Place the "Record-Off-Playback" switch in the "Record" position. Allow the unit to warm up for about 30 seconds.

5. Insert connector of a high impedance microphone into the "Mic" jack.

6. Start recording by turning "Rewind-Stop-Forward" to "Forward" position.

7. Adjust recording level so that "eye" just closes on the loudest notes of recording.

8. Recordings from a record changer, radio, TV or tuner are made by connecting to the "Record/ Playback – Input/ Output" jack on the rear of the set. After connecting, proceed as described above.

Dual Track Recording:

This unit only records on one-half of the tape. To use the full tape, remove the reel from the right hand reel when all tape has been wound on it, place it on the left hand spindle and proceed as described under "Threading The Tape".

To Rewind A Tape:

1. Before rewinding, lift the tape away from the record head and place it above the head shield. This prevents excessive wear of the head pole pieces.

2. Place the "Rewind-Stop-Forward" switch in the "Rewind" position.

3. Rewinding may be stopped at any time by turning the switch to the "Stop" position.

To Play Recordings:

1. Turn unit on with volume control knob.

2. Connect unit to amplifier and speaker.

3. Set the "Record/ Playback" switch to "Playback".

4. Set the tape in Motion by turning the "Rewind/ Forward" switch to "Forward".

5. Adjust the volume control for desired listening level.

High Speed Forward:

1. When it is desirable to play a certain section of the tape it is not necessary to play the entire tape. By depressing the "Fast Forward" knob the tape will advance at a rapid speed, skipping several minutes of playing time in a few seconds. When the desired sec-

tion is reached release the "Fast Forward" knob and set the machine for normal playback.

To Edit And Splice Tape:

NOTE: It is impossible to edit and splice one track of a tape without affecting the other track. Therefore any recordings to be edited should be limited to one track only.

1. The tape may be edited by cutting out unwanted sections, joining selections in another sequence, inserting announcements, etc. Unused sections can be spliced together for reuse.

2. For best results, cut tape at a slight diagonal, join ends together with splicing tape and cut off any excessive width.

CAUTION: Do not use ordinary cellulose tape because it will bleed through causing the tape to stick together.

Erasing Recorded Material:

1. When a recording is being made the tape is automatically erased on the track that is being recorded. The second half of the tape is not affected.

2. To erase a recording without recording new material on the tape, proceed to record as normally except turn the volume control completely down.

ADJUSTMENTS

Record/ Playback Head Adjustment:

The record-playback head is mounted to the front panel by two screws in a hinge arrangement. Adjust as follows:

1. Thread an alignment tape into the unit as described under "Threading The Tape".

2. Connect an audio voltmeter or oscilloscope to the output of the playback amplifier.

3. Playback a section of the alignment tape and adjust the volume control until a convenient reading is obtained.

4. Again start the tape over the heads. While observing the output reading adjust the left-hand head mounting screw for maximum reading. When the maximum has been reached the head is properly aligned.

NOTE: It is advisable to first loosen the left hand screw to make sure that when adjusting it will pass through the maximum reading. Final adjustment should leave the screw set for maximum reading.

Hum Adjustment:

The record-playback head shield is adjusted to reduce hum as follows:

1. Rocking the head shield will produce a noticeable variation in hum level.

2. Adjust the shield to the position which gives the lowest hum level, with the volume control set at maximum, the unit stopped, no tape on the head, and set in the "Playback" position.

3. Realign the head after the hum adjustment.

CAUTION: Never let the head cover drop on the head. This not only affects the hum adjustment, but also the head alignment.

Rewind And Take-Up Drag Adjustment:

Adjustments to the friction drag system are measured by means of a 0 to 1 pound spring scale fastened to string wound several times around the hub of a 7" reel. Place the reel on the spindle to be adjusted and pull on the scale slowly until the reel revolves. Note the reading. The rewind drag should be set at 3 to 4 ounces and the take-up drag at 6 to 7 ounces.

Adjustment is made by loosening the socket head set screw in split nut (96) or (104) rotating the split nut and tightening the set screw again before measuring. Knurled nut (104) adjusts rewind drag and nut (96) adjusts take-up drag.

CLEANING

The head assemblies, pressure roller, and capstan are subject to an accumulation of tape coating residue, which is worn off the tape as it passes these parts. Use a soft cloth dipped in carbon tetrachloride to clean these parts, being careful not to saturate the pressure roller and heads. Saturation of these parts with carbon tetrachloride can cause damage to the tape and oilite bearings.

CAUTION: Do not use a brush when cleaning the heads as this could possibly mar the pole surfaces.

LUBRICATION

Most bearings in this unit are of the porous bronze (oilite) type that retain oil over long periods of time. The bearings are kept damp by felt wick pads. Oil should be applied to the wicks, and not the shafts or bearings. Use a good quality SAE #30 oil.

Motors:

Two or three drops on front and back bearings every six months.

Capstan Shaft Bearings:

Two or three drops on felt pads every six months.

Intermediate Idler Wheels:

One drop of oil on felt washers every six months.

Take-Up Clutch And Rewind Brake:

Do not oil unless squeaking, then one or two drops of oil on felt pads.

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

A PHOTOFACT "EXPLODED" VIEW
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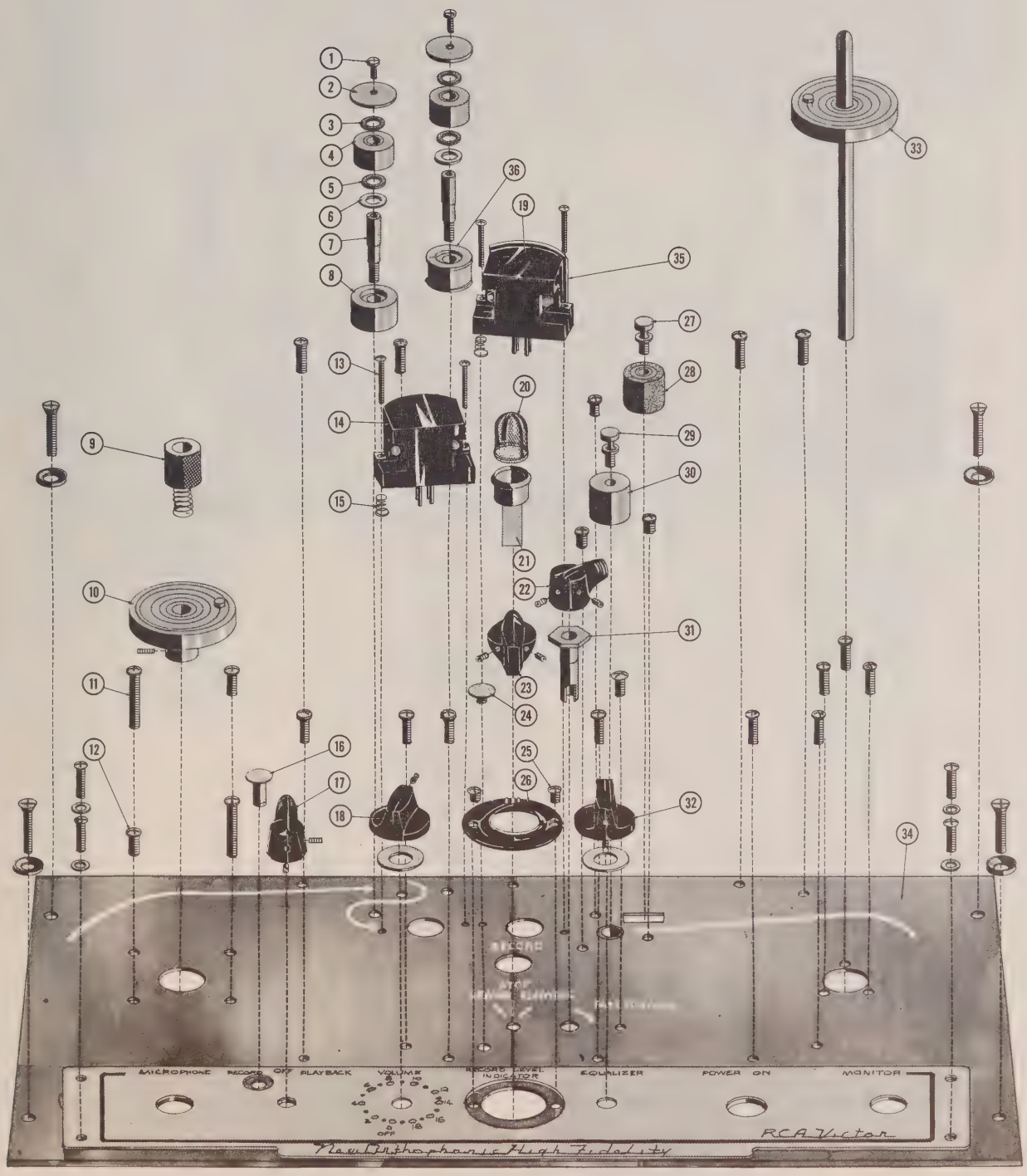


FIGURE 3A. Exploded View Of Parts Above The Front Panel

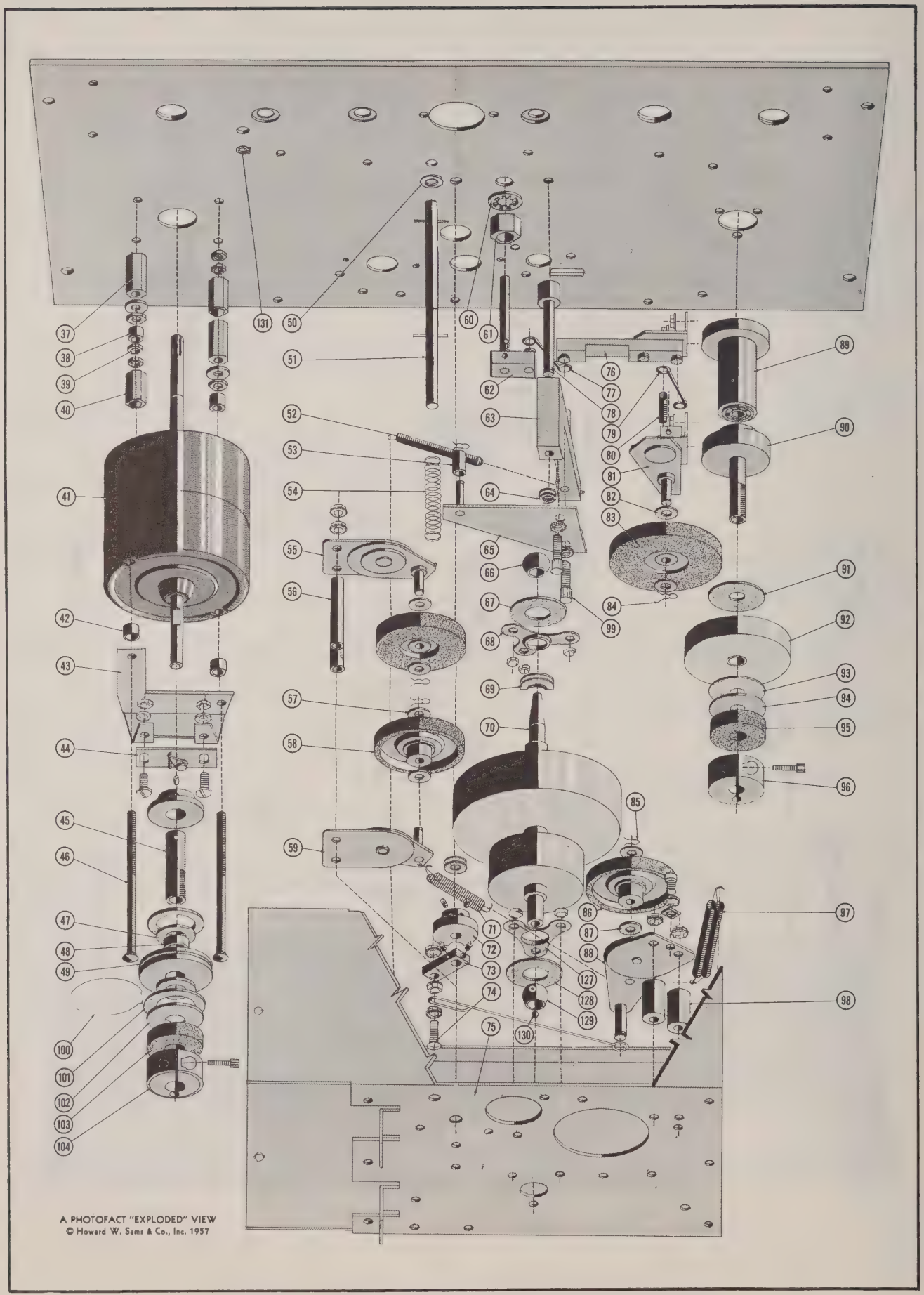


FIGURE 3B. Exploded View Of Parts Below The Front Panel

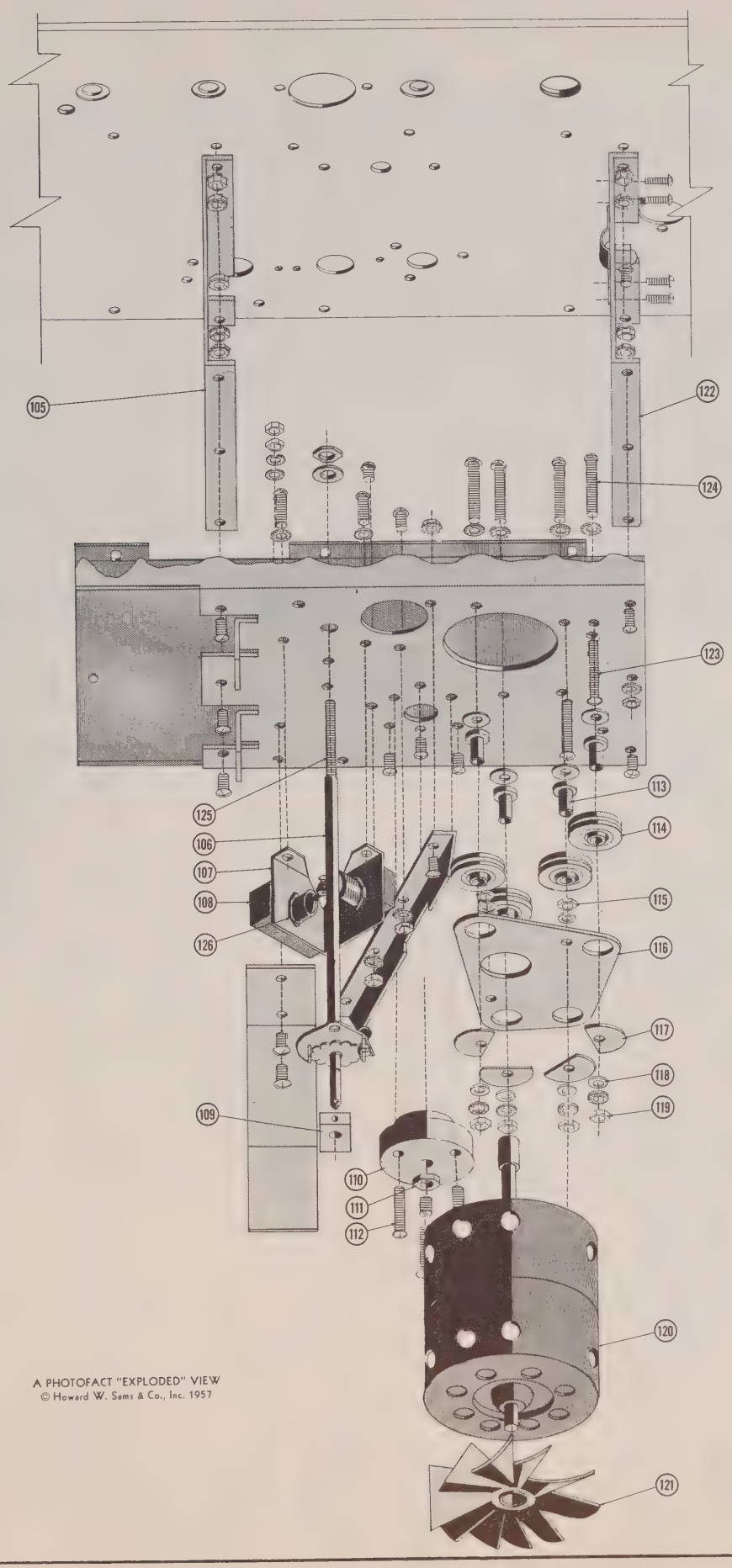
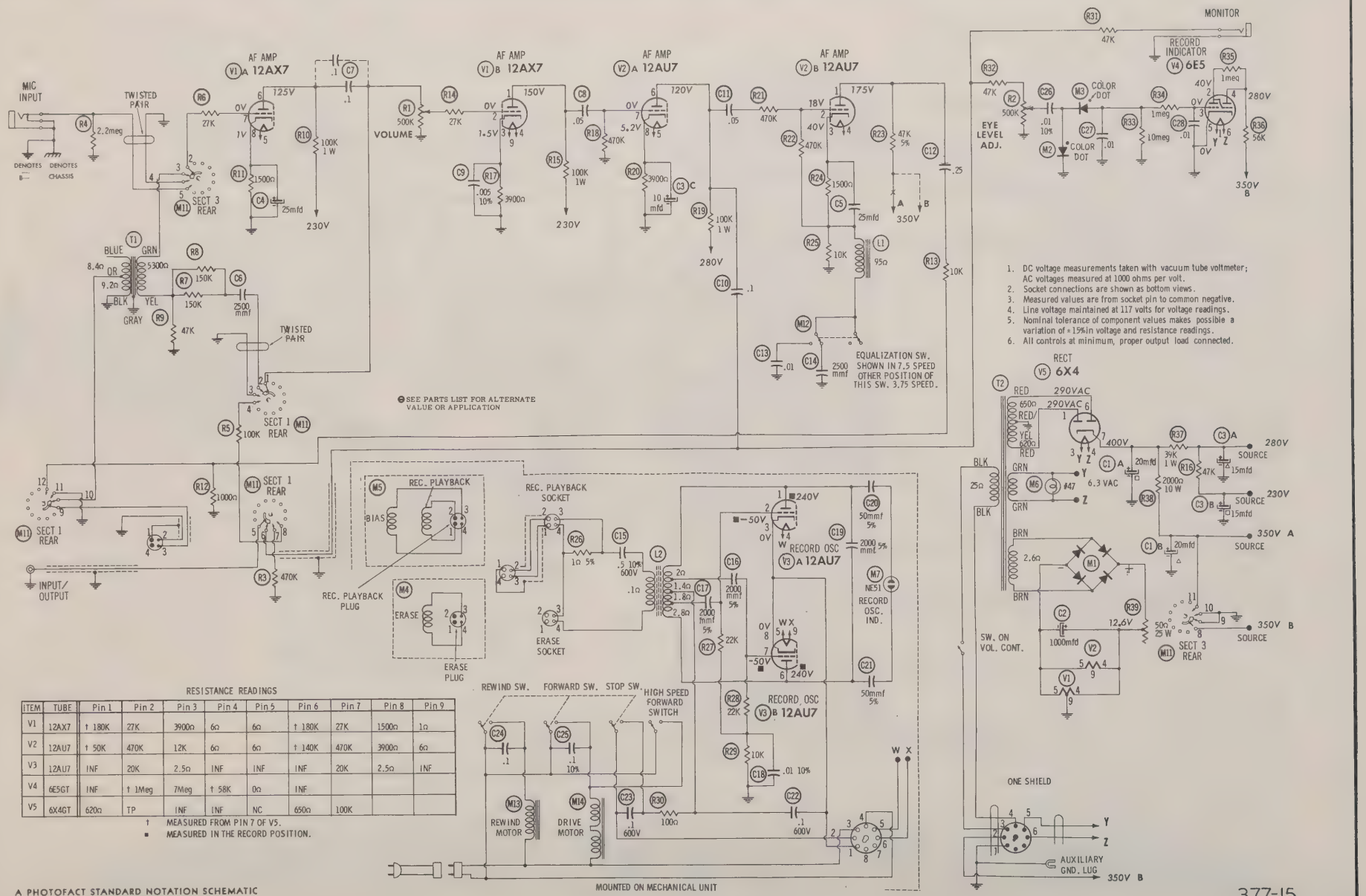


FIGURE 3C. Exploded View Of Parts Below The Rear Panel



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	† 180K	27K	3900Ω	6Ω	6Ω	† 180K	27K	1500Ω	1Ω
V2	12AU7	† 50K	470K	12K	6Ω	6Ω	† 140K	470K	3900Ω	6Ω
V3	12AU7	INF	20K	2.5Ω	INF	INF	INF	20K	2.5Ω	INF
V4	6E5GT	INF	† 1Meg	7Meg	† 58K	0Ω	INF			
V5	6X4GT	620Ω	TP	INF	INF	NC	650Ω	100K		

† MEASURED FROM PIN 7 OF V5.
■ MEASURED IN THE RECORD POSITION.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

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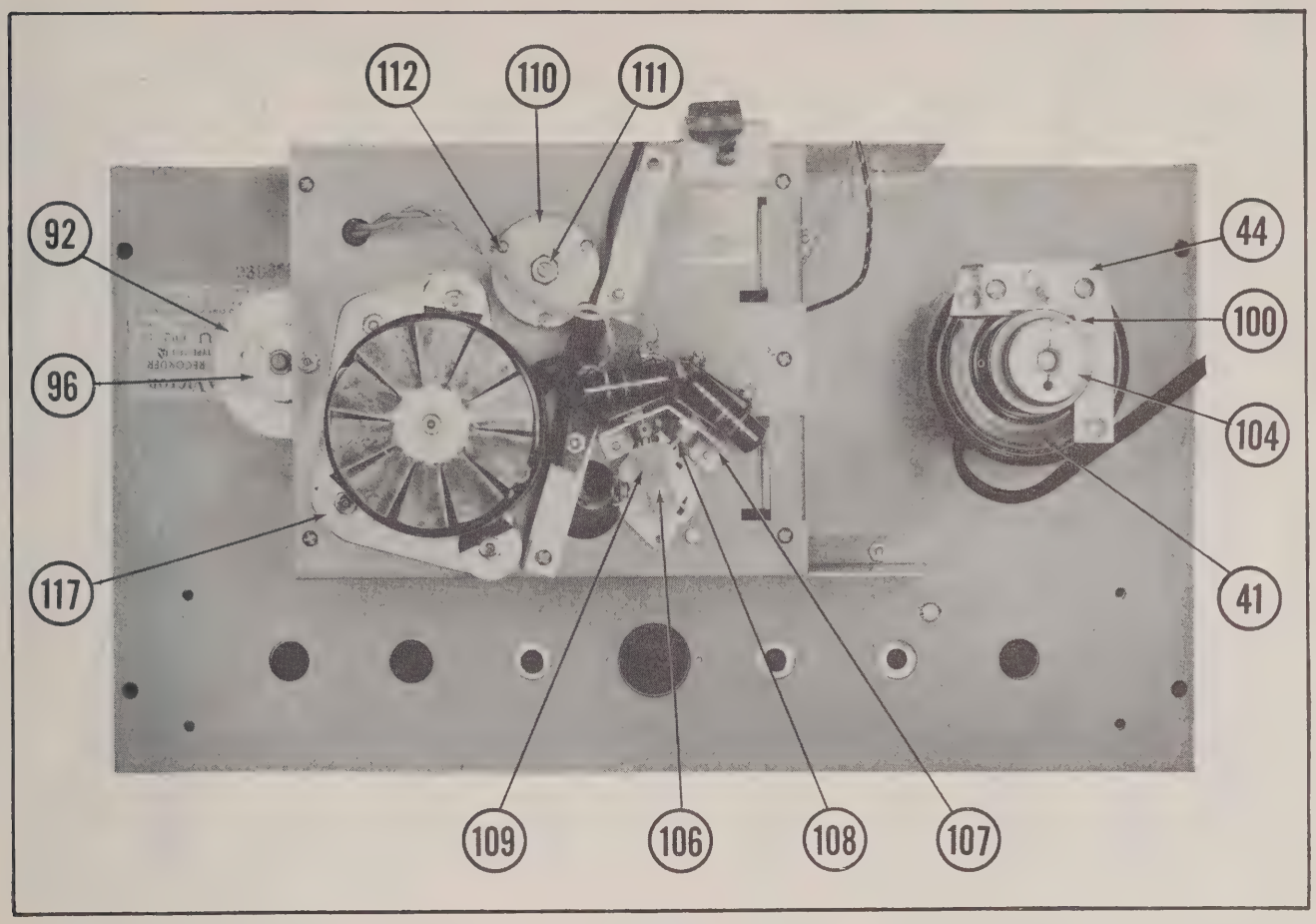


FIGURE 4

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
1		Screw, #4-32 x 1/4"
2	207858	Washer, Aluminum
3	207859	Washer, Fiber
4	207855	Roller, Flat, Guide
5	207861	Spacer, Felt, Guide Roller
6	207860	Washer, Guide Roller Asmy.
7	207856	Shaft, Guide Roller
8	207857	Spacer, Guide Roller
9	207950	Retainer, Rewind Reel
10	207896	Flange, Rewind Reel Asmy., With Set Screw
11		Screw, #8-32 x 5/8", Rewind Motor
12		Screw, #8-32 x 3/8, Rewind Motor
13	207947	Screw, #2-56 x 3/4", Head Mounting
14	207919	Head, Erase, (PU2)
15	207945	Spring, Recording Head Adjusting
16	207852	Button, Record-Playback Safety
17	207937	Knob, "Record-Off-Playback", With Set Screws
18	100776	Knob, Volume Control
19	207923	Head, Record-Playback (PU1)
20	208456	Jewel, Record Indicator Lamp
21	208458	Socket, Record Indicator Lamp
22	207937	Knob, Fast Forward

Ref. No.	Part No.	Description
23	207938	Knob, Rewind-Stop-Forward
24	207910	Knob, Safety, With Shaft
25		Screw, #8 x 3/8"
26	207853	Escutcheon, Magic Eye
27	207916	Screw, Pressure Roller, #4-36 x 5/16"
28	207885	Roller, Pressure, 60 Cy, 7 1/2 - Sec.
29	207917	Screw, Capstan, #4-36 x 3/8"
30	207908	Capstan, 60 Cy, 7 1/2 - Sec.
31	207946	Sleeve, Fast Forward Control
32	100776	Knob, Equalizer Switch
33	207894	Spindle, Take-Up, And Bayonet Assembly
	207901	Spindle, Take-Up Spindle Nose
34	100768	Panel, Control
35	207924	Shield, Record-Playback Head
36	207854	Roller, Guide (Flanged) With Bearing
37		Spacer, Rewind Motor Mtg. (Long)
38		Spacer, Rewind Motor Mtg. (Short)
39		Nut, #8, Hex
40	207868	Spacer, Rewind Motor Mtg. (Short) With Rubber Bumper
41	100770	Motor, Rewind, 115V. 60 Cy.
42		Spacer, Pawl Mtg. Bracket
43		Bracket, Pawl Mtg.

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AX7	
V2	AF Amplifier	12AU7	
V3	Record Oscillator	12AU7	

ITEM No.	USE	TYPE	NOTES
V4	Record Level Indicator	6E5	
V5	Rectifier	6X4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■20	450	34889	AFH2-51	B0400	FP234	TMD-50	D-215	TVL-2755
B	▲20	450							
C2	1000	15	99121	AFH1-02	A0060	WP039	TMS-4	S-020	TVL-1165
C3A	▲15	450	207960	AFH3-33	CO250	FP376.1	TMT-33	T-130	TVL-3778
B	■15	450							
C	10	450							
C4	25	25	59928	PRS25V25	BBR25-25	TC26	TD-25-25	MT-0225	TVA-1205
C5	25	25	59928	PRS25V25	BBR25-25	TC26	TD-25-25	MT-0225	TVA-1205

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	2500		100781	1467-0025	D6-252	1W5D25	ED-0025	UC-5225	1FM-225	
C7	.1	400	100783	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C8	.05	450	73553	BPD-05	DF-503	CUB6S5		GEM-615	6TM-S5	
C9	.005	400	73920	1464-005		1R5D47			MS-25	10%
C10	.1	400	100775	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C11	.05	450	73553	BPD-05	DF-503	CUB6S5		GEM-615	6TM-S5	
C12	.25	400	204817	P488N-25		CUB4P25		GEM-4025	4TM-P25	
C13	.01	400	100780	BPD-01	DD-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C14	2500		100781	1467-0025	D6-252	1W5D25	ED-0025	UC-5225	1FM-225	
C15	.5	600	53921	P688N-5						10%
C16	2000		39659	1464-002		1R5D2			MS-22	5%
C17	2000		39659	1464-002		1R5D2			MS-22	5%
C18	.01	400	73561	1464-01	DD-103				MS-11	10%
C19	2000		39659	1464-002		1R5D2			MS-22	5%
C20	50		205864	1469-00005	TCZ-50	22R5Q5	TCO-50		MS-45	5%
C21	50		205864	1469-00005	TCZ-50	22R5Q5	TCO-50		MS-45	5%
C22	.1	600	73557							10%
C23	.1	600	73557							10%
C24	.1	400	100783	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C25	.1	400	100783	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C26	.01	400	100780	BPD-01	DD-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C27	.01	400	100780	BPD-01	DD-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C28	.01	400	100780	BPD-01	DD-103	CUB4S1	GP-10000	GEM-411	4TM-S1	

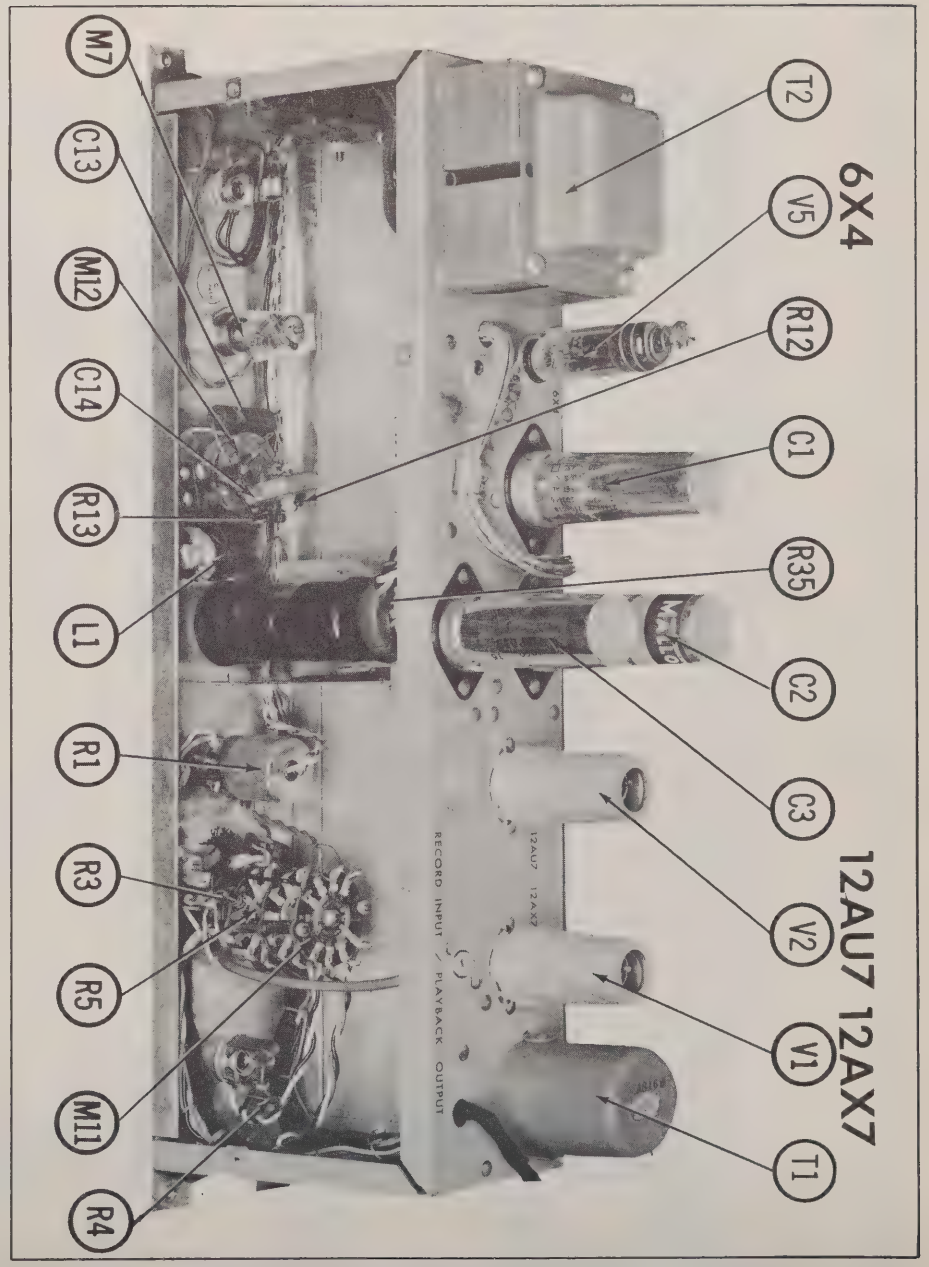
COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		RCA Victor PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Equalizer Coil	207955				90 Millihenries
L2	Bias Oscillator	207883				9 Millihenries

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½		B-60	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R2A	500K	½	100782	AB-60	A47-500K-Z	Q13-133	U48	Eye Level Adjust
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	RCA Victor PART No.	IRC PART No.	
R3	470K		502447	BTS-470K	
R4	2.2Meg		502522	BTS-2.2Meg	
R5	100K		502410	BTS-100K	
R6	27K		502327	BTS-27K	
R7	150K		502415	BTS-150K	
R8	150K		502415	BTS-150K	
R9	47K		502347	BTS-47K	
R10	100K	1	512410	BTA-100K	
R11	1500Ω		502215	BTS-1500	
R12	1000Ω		502210	BTS-1000	
R13	10K		502310	BTS-10K	
R14	27K		502327	BTS-27K	
R15	100K	1	512410	BTA-100K	
R16	47K		502347	BTS-47K	
R17	3900Ω		71084	BTS-3900	
R18	470K		502447	BTS-470K	
R19	100K		502410	BTS-100K	
R20	3900Ω		71084	BTS-3900	
R21	470K		502447	BTS-470K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	RCA Victor PART No.	IRC PART No.	
R22	470K		502447	BTS-470K	
R23	47K 5%		502347	BTS-47K 5%	
R24	1500Ω		502215	BTS-1500	
R25	10K		502310	BTS-10K	
R26	1Ω 5%		207882		
R27	22K		502322	BTS-22K	
R28	22K		502322	BTS-22K	
R29	10K		512310	BTS-10K	
R30	100Ω		502110	BTS-100	
R31	47K		502347	BTS-47K	
R32	47K		502347	BTS-47K	
R33	10Meg		502610	BTS-10Meg	
R34	1Meg		502510	BTS-1Meg	
R35	1Meg		502510	BTS-1Meg	
R36	56K		502356	BTS-56K	
R37	39K	1	512339	BTA-39K	
R38	2000	10	34473	1 3/4A-2000	
R39	50Ω	25	45295	2 1/2DA-50	

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	117VAC @ .2A	570VCT @ .020A	6.3V @ 1.2A	20VAC @ .3A	207960					

TRANSFORMER (INPUT)

ITEM No.	Turns Ratio		REPLACEMENT DATA						NOTES
	PRI.	SEC.	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1:	20	207962				20A11 ①		① Tape Center Tap On Secondary Winding; Use Half Of Primary Winding & Drill New Mtg. Holes,

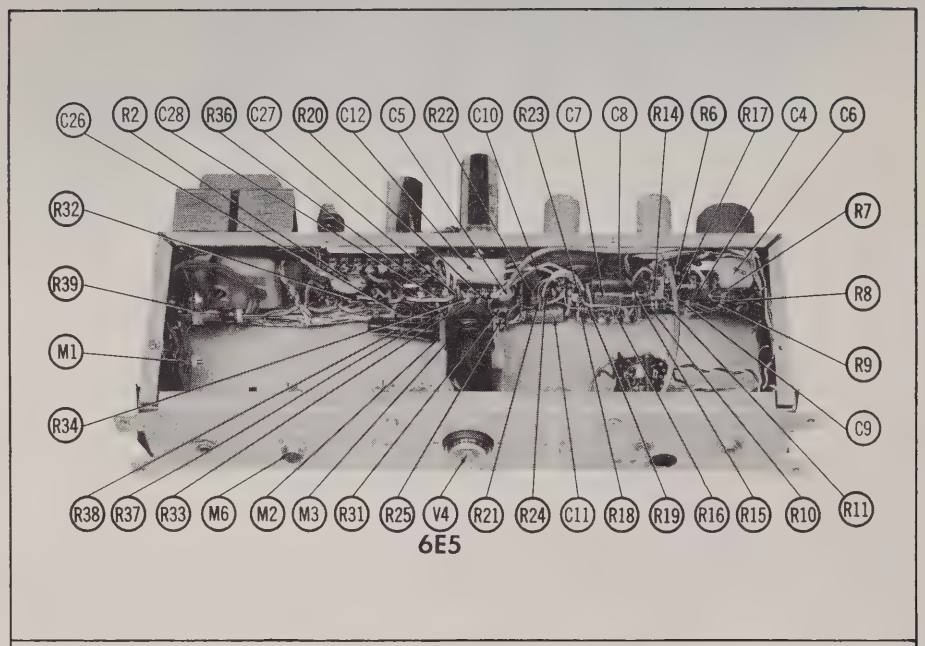
SELENIUM RECTIFIER

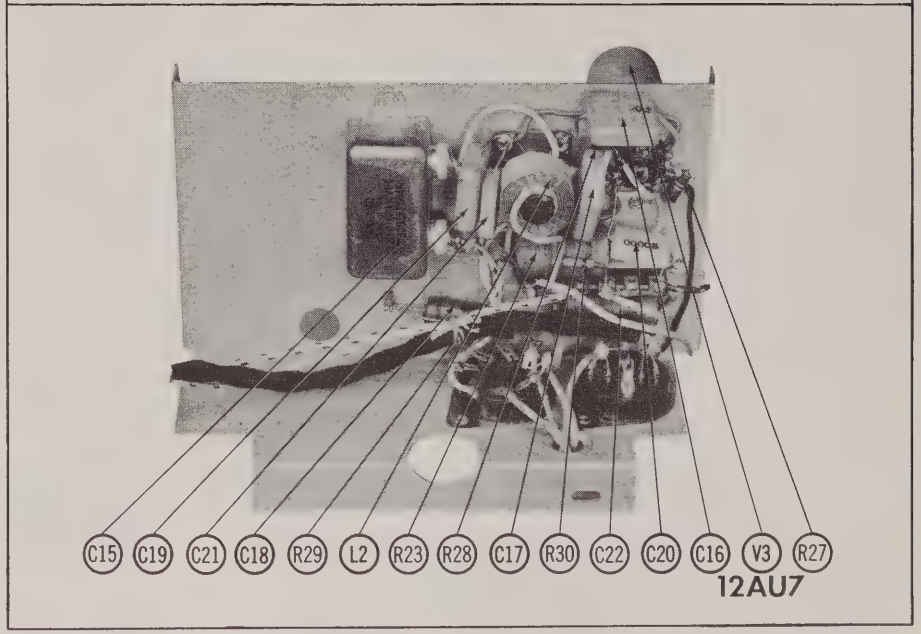
ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	RCA Victor PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.	
M1	.300A	99508	1017A	C1B	B26G	604B	
M2		207963	1215	1U1			
M3		207963	1215	1U1			

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M4	Erase Head	207919	
M5	Record Head	207923	
M6	Pilot Light	11891	#47
M7	Lamp	91749	#NE51 - Record Indicator
M8	Switch	207876	Toggle Type (DPST)
M9	Switch	207876	Toggle Type (DPST)
M10	Switch	207935	Micro Type (SPST)
M11	Switch	100771	Record-Playback-Rotary Wafer Type
M12	Switch	57603	Equalizer - Rotary Wafer Type
M13	Motor	100770	Rewind
M14	Motor	207942	Drive

CHASSIS—BOTTOM VIEW





Ref. No.	Part No.	Description
44	207902	Pawl, Rewind And Plate Assembly
45	207897	Hub, Rewind And Flange Assembly
46		Screw, Pawl Bracket Mtg.
47	207893	Washer, Feet, White
48	207899	Bearing, Rewind Hub Ratchet
49	207898	Ratchet, Rewind Hub
50	207881	Washer, Felt, Grey
51	207887	Shaft, Safety And Drive Lock Pin
52	207909	Spring, Pressure Arm Roller
53	207865	Bearing, Cam Follower
54	207893	Washer, Felt White
55	207966	Plate, Idler Wheel Arm Asmy.
56	207880	Spacer, Take Up Wheel Plate
57	207867	Washer, Fiber
58	208028	Wheel, Idler Drive
59	207966	Plate, Idler Wheel Arm Asmy.
60		Lockwasher, Fast Forward Control Arm Sleeve
61	207948	Nut, Hex, 7/16 - 20
62	207928	Shaft, High Speed Forward Control
63	207862	Arm, Pressure, Assembly
64	94353	Retainer
65	207863	Plate, Pressure Arm Asmy.
66	207870	Bearing, Capstan Shaft, (Front)
67	207872	Washer, Felt, Oil Retainer
68	207871	Retainer, Capstan Shaft Bearing (Front)
69	207913	Washer, Capstan Spring Bronze
70	207884	Wheel, Capstan, Flywheel And Shaft Assembly
71	207873	Spring, Idler Wheel
72	100772	Cam, Pressure Roller
73	207906	Arm, Actuator
74		Screw, #6-32 x 3/4"
75	100786	Panel, Back
76	207930	Lever, Fast Forward Control
77	207932	Link, Wire, High Speed Forward (Long)
78	207864	Shaft, Pressure Arm Assembly
79	207931	Link, Wire, High Speed Forward (Short)
80	207936	Spring, Fast Forward Control
81	207929	Arm, High Speed Forward Wheel And Bracket Asmy.
82	207874	Washer, Red Fiber, Idler Wheel
83	208030	Wheel, High Speed Forward Idler
84		Retainer, Hair Pin
85	207866	Retainer, Hair Pin, Take-Up Wheel
86	208028	Wheel, Idler Take-Up
87	207867	Washer, Fiber
88	207875	Plate, Take-Up Wheel Arm

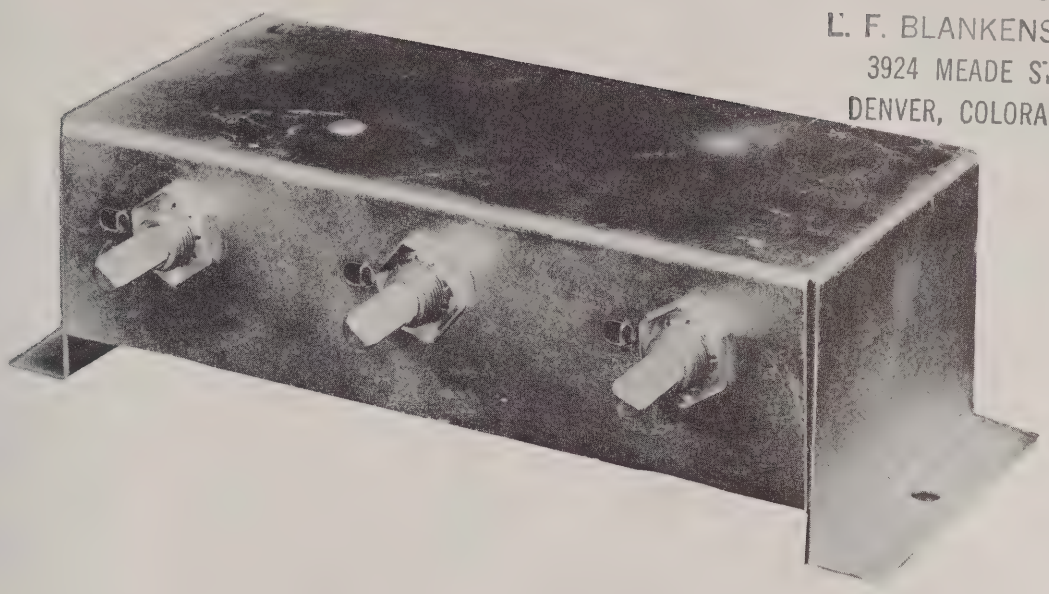
Ref. No.	Part No.	Description
		Assembly
89	207895	Housing, Take-Up, Assembly
90	207888	Hub, Take-Up, Assembly
91	207893	Washer, Felt, White
92	207889	Wheel, Idler Take-Up Asmy.
93	207893	Washer, Felt, White
94	207892	Washer, Brass
95	207891	Washer, Sponge
96	207890	Locknut, With #8-32 x 1/2" Screw
97	207873	Spring, Idler Wheel
98	207879	Spacer, Take-Up Wheel Plate
99	100879	Screw, #8-32 x 3/16"
100	207903	Spring, Rewind Pawl
101	207893	Washer, Felt, White
102	207892	Washer, Brass
103	207891	Washer, Sponge
104	207890	Locknut, With #8-32 x 1/2" Screw
105		Spacer, Panel
106	207907	Shaft, Switch And Cam Asmy.
107		Bracket, Switch Mounting
108	207876	Switch, Toggle DPST, Special Lever
109	207886	Arm, Switch And Pin Assembly
110	207877	Bearing, Thrust, Assembly
111	207878	Screw, 1/4-20 x 1/2, Thrust Adjusting
112		Screw, B. H. M. S., Thrust Housing
113	207940	Spacer, Drive Motor Mtg. Plate
114	207941	Mounting, Shock, Rubber, Drive Motor
115		Nut, #10, Motor Mtg.
116	207939	Plate, Drive Motor Mtg.
117	207944	Washer, Segment, Motor Mtg.
118		Washer, #10, Motor Mtg.
119		Nut, #8, Motor Mtg.
120	207942	Motor, Drive
121	207943	Fan, Motor Cooling
122	100788	Panel, Side
123		Screw, #6, Take-Up Wheel Arm And Plate Mtg.
124		Screw, #8 x 1", Motor Mtg.
125		Screw, #6-32 x 2", Idler Wheel
126		Nut, Switch Mtg.
127	207871	Retainer, Capstan Shaft Bearing (Rear)
128	207872	Washer, Bearing Oil Retaining
129	207870	Bearing, Capstan Shaft (Rear)
130	207911	Ball, Thrust Bearing
131		Retainer, Truarc, Record Safety Button.
132	207949	Capstan, 3 3/4" - Sec. 60 Cy. (Not Shown)
133	207951	Roller, Pressure, 3 3/4" - Sec., (Not Shown).

PHOTOFACT* Folder
*TRADE MARK

SENTINEL CHASSIS AMP-140A, B, C

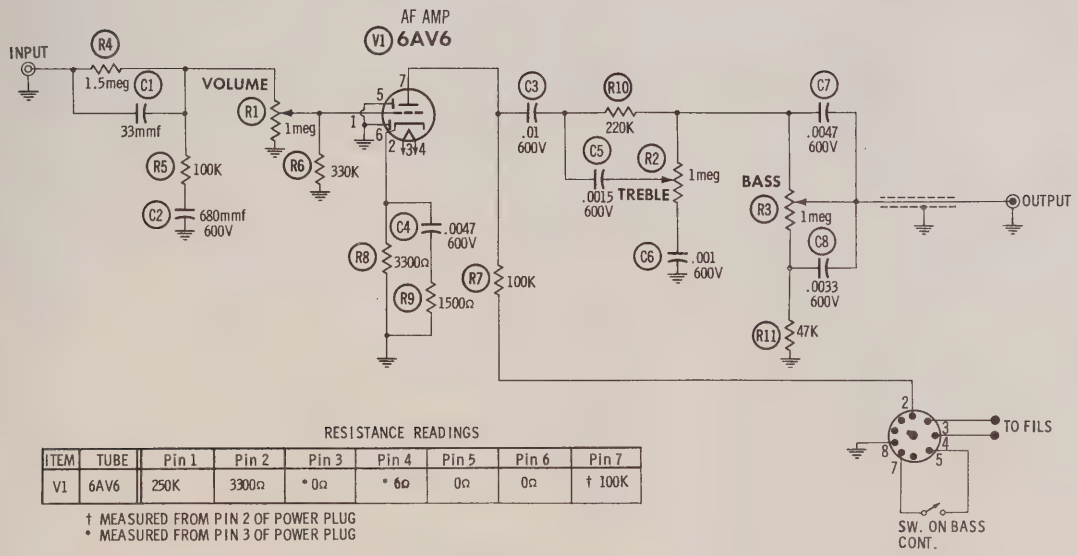
PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SENTINEL CHASSIS
AMP-140A, B, C



TRADE NAME	Sentinel Chassis AMP-140A, AMP-140B, AMP-140C
MANUFACTURER	Sentinel Radio Co., Fort Wayne 4, Indiana
TYPE SET	Externally Powered Phono Preamplifier
TUBES (One)	Type 6AV6 Preamplifier
POWER SUPPLY	Externally Powered

SENTINEL CHASSIS
AMP-140A, B, C



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	6AV6	250K	3300Ω	* 0Ω	* 6Ω	0Ω	0Ω	† 100K

† MEASURED FROM PIN 2 OF POWER PLUG
* MEASURED FROM PIN 3 OF POWER PLUG

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

377-16

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	6AV6	

ITEM No.	USE	TYPE	NOTES

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SENTINEL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1	33		250207-9	SI33	D6-330	LT6Q33	ED-33	UC-5433	5GA-Q33	
C2	680	500	250159-131	1464-00068		1R5T68			MS-368	
C3	.01	600	250201-7	BPD-01	DD-103	CUB6S1	GP-10000	GEM-611	6TM-S1	
C4	.0047	600	250201-5	BPD-0047	DD-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C5	.0015	600	250201-2	BPD-0015	D6-152	CUB6D15	GP-1500	GEM-6215	6TM-D15	
C6	.001	600	250201-1	BPD-001	DD-102	CUB6D1	GP-1000	GEM-621	6TM-D1	
C7	.0047	600	250201-5	BPD-0047	DD-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C8	.0033	600	250201-4	BPD-0033	D6-332	CUB6D33	GP-3300	GEM-6233	6TM-D33	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SENTINEL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	220072-18	B-70	A47-1Meg-Z	Q13-137	U53	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2A	1Meg	½	220072-21	B-68		Q17-137	U52	Treble
B	Shaft			Not Req.		Not Req.	Not Req.	
R3A	1Meg	½	220073-18	B-70	A47-1Meg-Z	Q13-137	U53	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

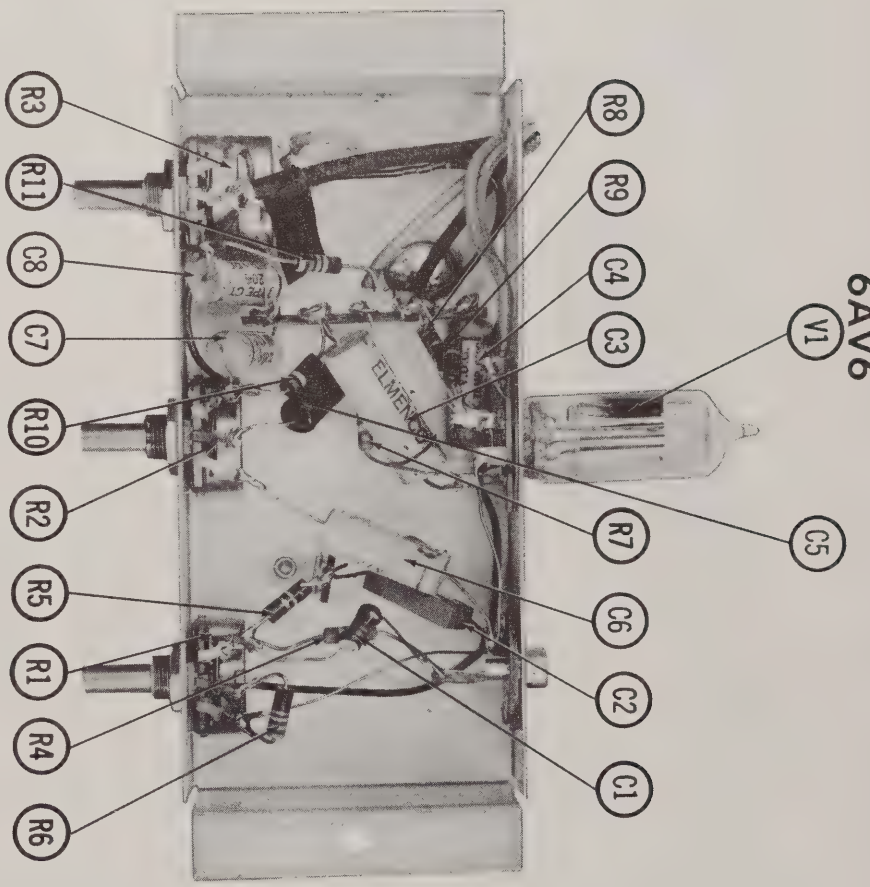
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SENTINEL PART No.	IRC PART No.	
R4	1.5Meg		230104-100	BTS-1.5Meg	
R5	100K		230104-86	BTS-100K	
R6	330K		230104-92	BTS-330K	
R7	100K		230104-86	BTS-100K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SENTINEL PART No.	IRC PART No.	
R8	3300Ω		230104-68	BTS-3300	
R9	1500Ω		230104-64	BTS-1500	
R10	220K		230104-90	BTS-220K	
R11	47K		230104-82	BTS-47K	

CHASSIS—BOTTOM VIEW



PHOTOFACT* Folder

*TRADE MARK

RETMA MEMBER

SILVERTONE MODELS 5245A, 6233, 6234, A, 6240, 7233, A, 7234, A, 7238, D, 7239, D, 52451A (Ch. 567.36001, 567.36004, 567.36008, 567.36010, 567.36011, 567.42300, 567.42400)

SILVERTONE MODELS 5245A, 6233, 6234, A, 6240, 7233, A, 7234, A, 7238, D, 7239, D, 52451A (Ch. 567.36001, 567.36004, 567.36008, 567.36010, 567.36011, 567.42300, 567.42400)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SILVERTONE MODELS 5245A, 6233, 6234, A, 6240, 7233, A, 7234, A, 7238, D, 7239, D, 52451A (Ch. 567.36001, 567.36004, 567.36008, 567.36010, 567.36011, 567.42300, 567.42400)

TRADE NAME	Silvertone	Models	Chassis	Models	Chassis
		5245A	567.36001	7234	567.36008 (or) 567.36010
		6233	567.36004	7234A	567.36008 (or) 567.42400
		6234	567.36004	7238	567.36004 (or) 567.36011
		6234A	567.36004	7238D	567.36010
		6240	567.36004	7239	567.36008 (or) 567.36010
		7233	567.36008	7239D	567.36011
		7233A	567.42300	5245lA	567.36001
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois				
TYPE SET	AC Operated Phono Amplifier				
TUBES (Two)	Types 50C5 Output, 35W4 Rectifier				
POWER SUPPLY	110-120 Volts AC-60 Cycles			RATING	.44 Amp. @ 117 Volts AC (40 Watts)

MODEL 6240 HAS 3 SPEED AUTOMATIC RECORD CHANGER CHASSIS 567.31005.
FOR SERVICE INFORMATION ON 45 RPM RECORD CHANGER 567.32002 (OR) 567.32102 USED IN MODEL 7238, OR CHANGER 567.32004 (OR) 567.32104 USED IN MODEL 7239—SEE SIMILAR RCA MODEL RP-190 SERIES—PHOTOFACT SET 144 FOLDER 7 OR RECORD CHANGER MANUAL CM-4.

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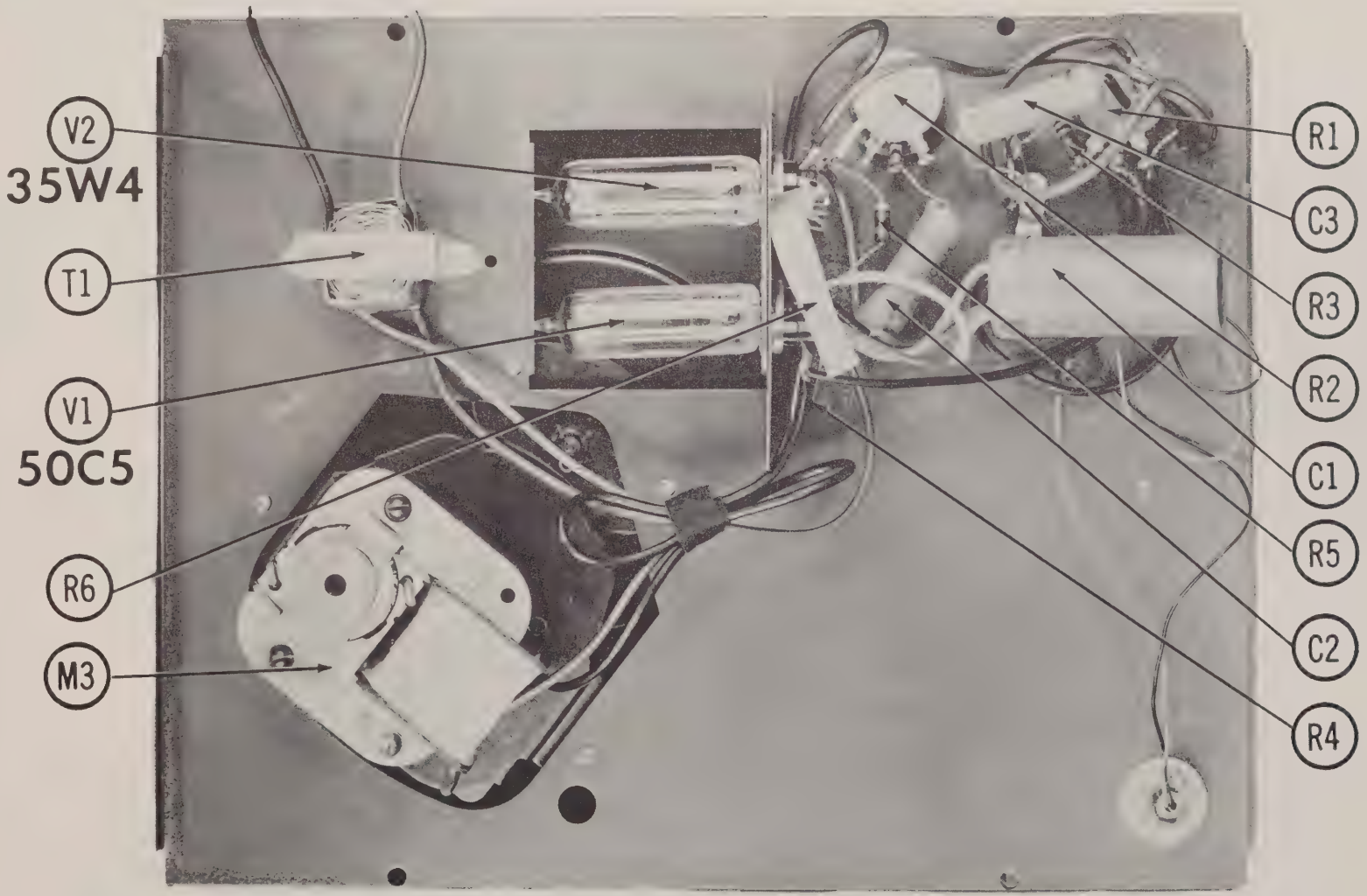


CHASSIS-BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Output	50C5	

ITEM No.	USE	TYPE	NOTES
V2	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	60	150	770157 ①	PRS150/	BBRT8415C	TCT3117	TDLT-7	FMT-333	TVA-3455
B	40	150		25V8040/20					
C	20	20							

① Chassis 567. 36001 uses Part #770115 in this application.
Chassis 567. 36004 & 567. 36011 use Part #770124 in this application.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.05	200	770122	BPD-05	DF-503	CUB2S5		GEM-415	2TM-S5	
C3	.05	200	770122	BPD-05	DF-503	CUB2S5		GEM-415	2TM-S5	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2Meg	½	740093 ①	B-76	A47-2Meg-Z	Q13-139	U55	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R2A	50K	½	740094 ②	B-32	A47-50K-Z	Q13-123	U33	Tone
B	Shaft			Not Req.	KSS-3	Not REQ.	Not Req.	

① Part #740063 used in chassis 567. 36001, 567. 36004, 567. 36008, 567. 36010, 567. 36011
② Part #740062 used in chassis 567. 36001, 567. 36004, 567. 36008, 567. 36010, 567. 36011

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SILVERTONE PART No.	IRC PART No.	NOTES
R3	22K		760005	BTS-22K	
R4	150Ω		760023	BTS-150	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SILVERTONE PART No.	IRC PART No.	NOTES
R5	1000Ω		760067	BTS-1000	
R6	250Ω	5			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	1600Ω	1.6Ω	700117 ①	Z1101	A-3025	A-3332	22S45	S-12X	① Used in Chassis 567. 36010, 567. 36011, 567. 42300, 567. 42400
			700044 ②						② Used in Chassis 567. 36001, 567. 36004, 567. 36008

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA SILVERTONE PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	011870 ①	4A06	Parallel & Phase dual speaker installations.
SP2	4"	PM	3-4Ω	011870	4A06	① Used in Models 6233, 7233A, 7234, 7234A, 7238, 7239
	5"	PM	3-4Ω	011848 ②	5A07	② Used in Models 6240, 7238D
	4"	PM	3-4Ω	012193 ③		③ Used in Models 6234, 6234A
	4" X 6"	PM	3-4Ω	011796 ④		④ Used in Models 5245A, 5245lA
	5 1/4"	PM	3-4Ω	011857 ⑤		⑤ Used in Model 7239A

PARTS LIST AND DESCRIPTIONS (Continued)
PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA SILVERTONE PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M1	720056	120TS † P310-1	N8-1 N8-3			Models 7234, 7234A
	720089	414-1	N8-1			Models 7239, 7238, 7239D, 7238D
	720059	* 16 † E-16	N4-2 (J; M)			Models 7233, 5245A, 5245lA, 6233, 6234, 6234A
	720154	414-1 † P310-2	N8-1			Model 7233A
	720086	62-1	K(J)			Model 7238
	720088	66-2	K-AG-J			Model 6240

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.
* Needle not included with cartridge. † Tone arm complete with cartridge.

PHONO NEEDLE

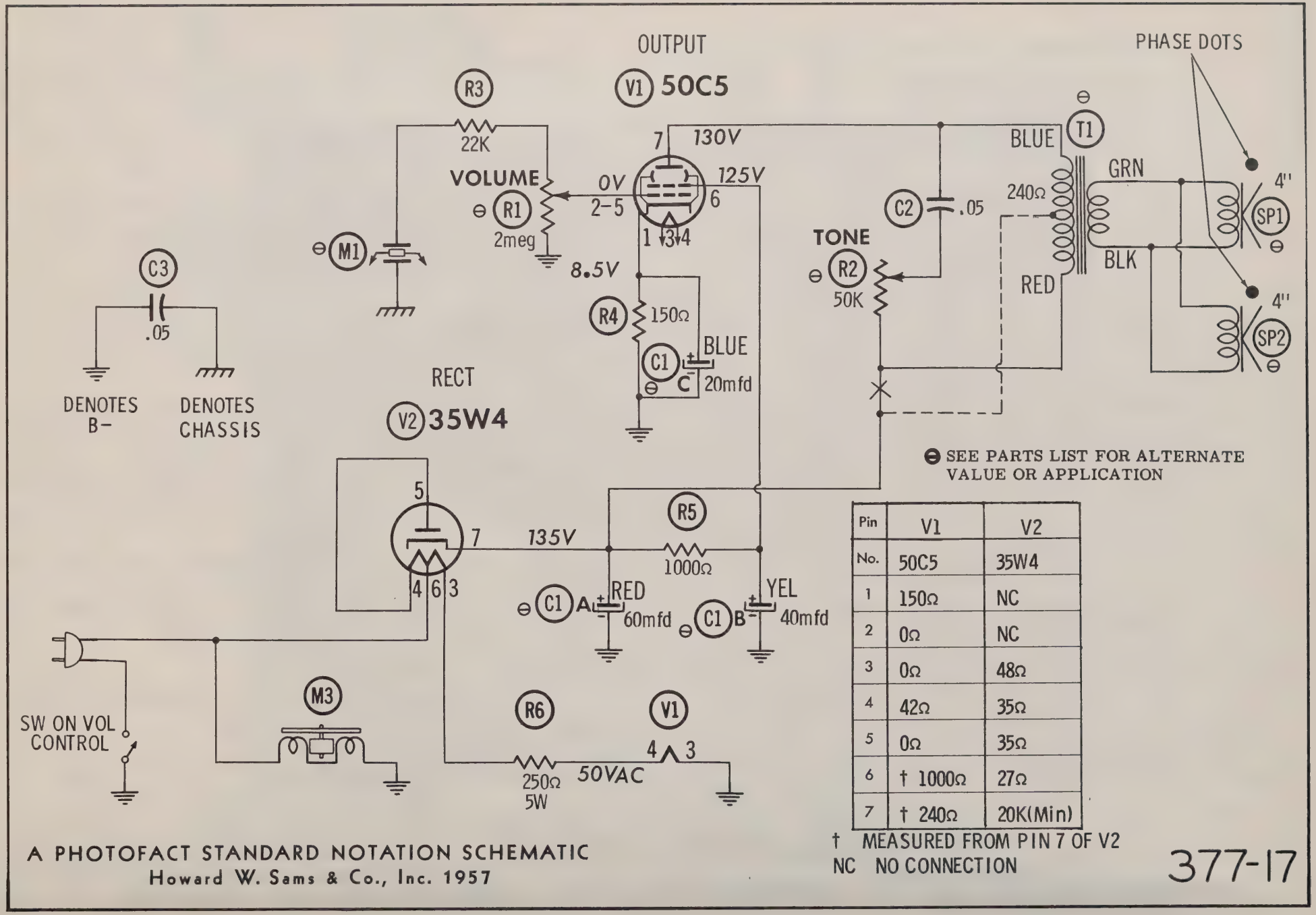
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA SILVERTONE PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2	720064 (78RPM) 720065 (LP)	† CRA-55 or ♦ CRA-55D † CRA-55LP or ♦ CRA-55LPD	† W64S or ♦ W64D † W64MGS or ♦ W64MGD	Models 7234, 7234A
	720065	† CRA-55LP or ♦ CRA-55LPD	† W64MGS or ♦ W64MGD	Models 7239, 7238, 7239D, 7238D
	490108	* J-152 or † J-252 or ♦ J-252D	* WA400-2 or † WS400-2 or ♦ W-400AGD	Models 7233, 5245A, 5245lA, 6233, 6234, 6234A
	720155	† CRA-552 or ♦ CRA-552D	† W64AGS or ♦ W64AGD	Model 7233A
	490166	* A-76LP or † A-67LP or ♦ A-67LPD	* W39MGA † W39MGS ♦ W-39MGD	Model 7238
	720111	* A-762 or † A-672 or ♦ A-672D	* W-39AGA	Model 6240

* Metal † Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M3	Motor (Phono)	011994	Includes Drive Wheel - Models 5245A, 5245lA
	Motor (Phono)	012334	Includes Drive Wheel - Model 6233
	Motor (Phono)	012335	Includes Drive Wheel - Model 6234
	Motor (Phono)	013138	Includes Drive Wheel - Models 6234A, 7233, 7233A
	Motor (Phono)	011417	Includes Drive Wheel - Model 6240
	Motor (Phono)	013270	Includes Drive Wheel - Models 7234, 7234A, 7238D
	Motor (Phono)	013316	Includes Drive Wheel - Model 6234A
	Motor (Phono)	700001-1 or 700001-2	Includes Drive Wheel - Models 7238, 7239, 7239D



Pin	V1	V2
No.	50C5	35W4
1	150Ω	NC
2	0Ω	NC
3	0Ω	48Ω
4	42Ω	35Ω
5	0Ω	35Ω
6	† 1000Ω	27Ω
7	† 240Ω	20K(Min)

† MEASURED FROM PIN 7 OF V2
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

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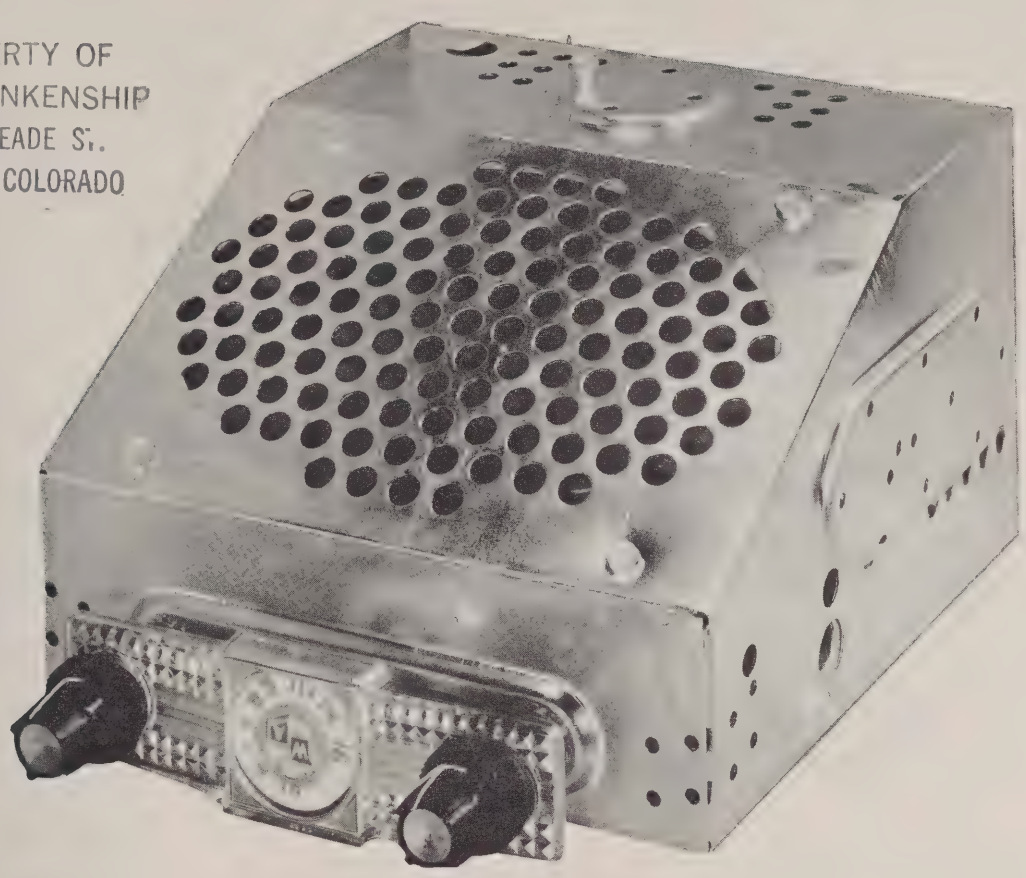
*TRADE MARK

TRUETONE MODEL D4826A

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TRUETONE MODEL D4826A



TRUETONE MODEL D4826A

TRADE NAME	Truetone Model D4826A
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	Battery Operated Universal Type AM Automobile Receiver With Transistorized Output
TUBES (Five)	Types 12BL6 RF Amplifier, 12AD6 Converter, 12BL6 IF Amplifier, 12AJ6 Det.-AVC-AF Amp., 12K5 Driver
POWER SUPPLY	12 Volt Storage Battery — RATING 1.6 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540KC-1605KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12AD6 (V2). Low side to chassis.	455KC (400~ Mod)	High frequency end of dial	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	"	"	1605KC	"	"	A5	"
3.	50MMF	Thru dummy to Antenna Receptacle. Low side to chassis.	1300KC	Tune to 1300KC signal	"	A6, A7	"

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FOLDER 18

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BL6	
V2	Converter	12AD6	
V3	IF Amplifier	12BL6	
V4	Det. -AVC- AF Amp.	12AJ6	
V5	Driver	12K5	

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N155	Output	2N155		2N155/2N176	Alternate Type: 2N176

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■500	15	245B002						
B	▲500	15							
C2	250	6	245A003	PRS6V250	BBR250-6	TC1502 TT6X50	TD-250-6	MTH-0625	TVA-1102

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

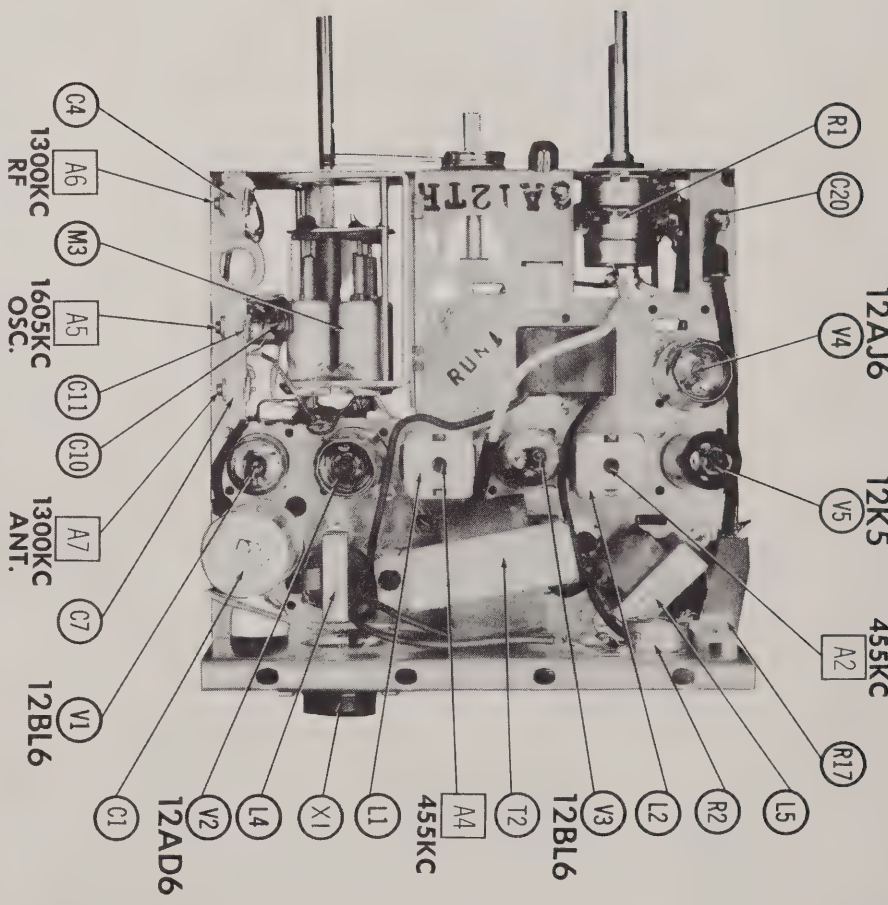
ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	90		247A005							
C4	23-120		244A004							
C5	20		47X20UK200K	N750-SI 20	TCN-20	CTA6Q2U	TC7-20		5TCU-Q1	N750 10%
C6	. 047	200	46C618-473M2	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C7	23-120		244A004							
C8	10		47X20UK100K	N750-SI 10	TCN-10	CTA6Q1U	TC7-10	NT-541	5TCU-Q1	N750 10%
C9	47		47X25UK470K1D	N750-SI 47	TCN-47	CTA6Q47U	TC7-47	NT-5447	5TCU-Q47	N750 10%
C10	220	500	47X15E221K	1469-00022		22R5T22			MS-322	5%
C11	32-145		244A001							
C12	100		47X25UK101K	NP0-SI 100	D6-101	L10T1	ED-100	ZT-531	5TCC-T1	10%
C13	. 047	200	46C618-473M2	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C14	. 0022	200	46C618-222M2	P688N-0022	DD-222	CUB6D22	GP-2200	GEM-6222	6TM-D22	
C15	. 022	200	46C618-223M2	P288N-022	DD-203	CUB4S22		GEM-4122	2TM-S22	
C16	. 047	200	46C618-473M2	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C17	10000		47A224	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C18	220	500	47X15E221K	1469-00022		22R5T22			MS-322	5%
C19	. 5	100	246A001	P288N-5		CUB2P5		GEM-205	2TM-P5	
C20	1000		247B006	EF-001	MFT-1000				503C-D1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	1/2	225B005	F1-51	RTV-592C	QJ-1070A		Tone
B	500K	1/2		R2-47	Not Req.	♦		Volume, Tap ② 50K
C	Switch			KB-1	Not Req.			
R2	15Ω	2	225B004					Bias Adjust (Wire Wound)

♦ Concentrikit Equivalent; K-6 Kit, Base Elements and Shafts: B11-137, P13-118 (Panel)
B18-133X, R1-130 (Rear) 76-1 (Switch)

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	TRUETONE PART No.	IRC PART No.	
R3	470K		23X20X474K	BTS-470K	
R4	1500Ω		23X20X152K	BTS-1500	
R5	1Meg		23X20X105K	BTS-1Meg	
R6	6.8Meg		23X20X685K	BTS-6.8Meg	
R7	1Meg		23X20X105K	BTS-1Meg	
R8	47K		23X20X473K	BTS-47K	
R9	2.2Meg		23X20X225K	BTS-2.2Meg	
R10	15Meg		23X20X156K	BTS-15Meg	
R11	1Meg		23X20X105K	BTS-1Meg	
R12	2.2Meg		23X20X225K	BTS-2.2Meg	
R13	10Ω		23X20X100K		
R14	1Meg		23X20X105K	BTS-1Meg	
R15	1Meg		23X20X105K	BTS-1Meg	
R16	22K		23X20X223K	BTS-22K	
R17	160Ω	7	224B001		Note 1
R18	1Ω		24BX010E		

Note 1. Temperature compensating unit. Some versions may use 150Ω (Part #224A001).

TRANSFORMER (DRIVER)

ITEM No.	Turns Ratio		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	8:	1	255C002						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	31.5Ω	3-4Ω	255C003				TR-59 ①		① Tape center tap on primary.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TRUETONE PART No.	QUAM PART No.	
SP1	4" X 6"	PM	3-4Ω	285B003	46A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		TRUETONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Input IF	50C242	16-6758	BC-352	12-C1	
L2	Output IF	250C001				
L3	Fil. Choke	253A002				

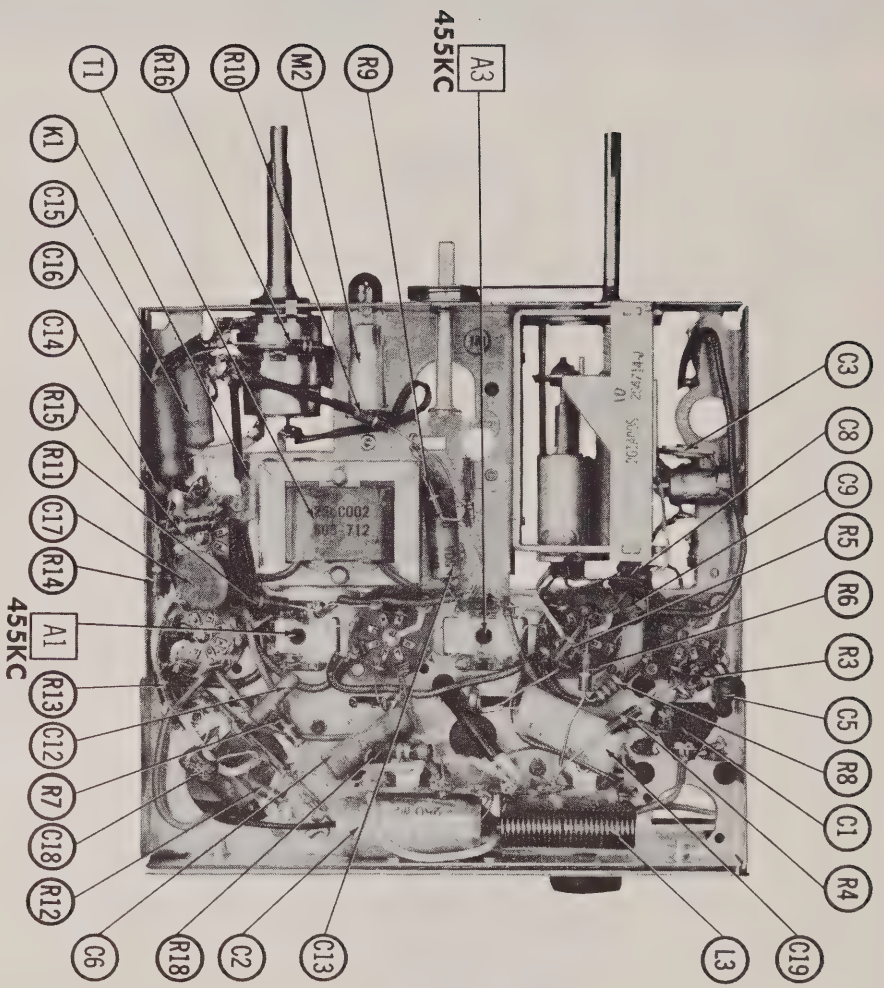
FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L4	.022A	40Ω	1.1Hy	256B003						
L5	.500A	.7Ω	.010Hy	256C001						

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRUETONE PART No.	REPLACEMENT DATA
K1	Diode RF Filter	100MMF, 100MMF, 47K	49A016	Aerovox PA-97-1 Centralab PC-50 Cornell-Dubilier 111TM1 Erie 1403-01 Sprague D-1

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			TRUETONE PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	5A32V	239A001		311005. (3AG 5A32V)	155020	AGC5	HDJ

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M2	Dial Light	239A002	#1815
M3	Tuner	201A008	Complete Assembly

CABINETS & CABINET PARTS

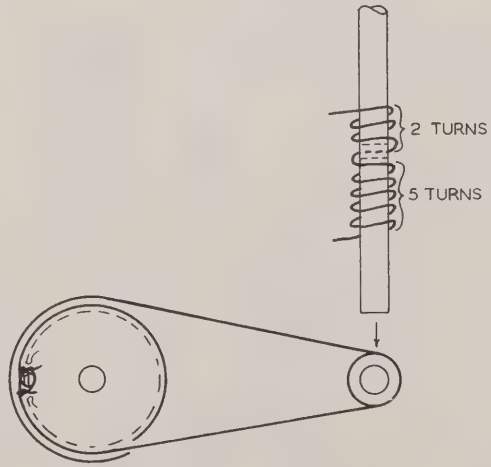
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	241A40008	On-Off-Volume
Knob	241A40009	Tuning
Knob	215B032	Tone
Escutcheon	207D038	
Dial Scale	283B001	

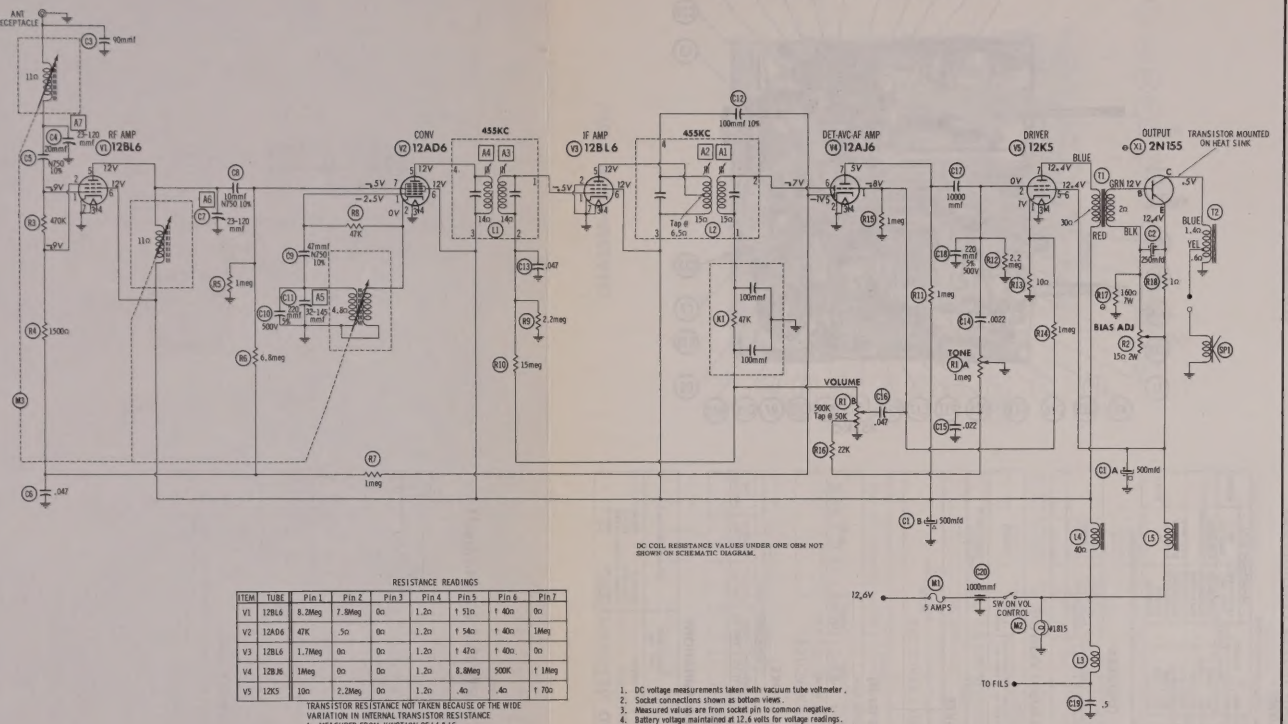
TRANSISTOR BIAS ADJUSTMENT (R2)

The transistor bias should be checked if the transistor is replaced or if associated circuits are repaired. The transistor should be at a temperature of approximately 70°F.

Connect a milliammeter in series with the collector lead of the transistor.
Connect a power source of 12.6 volts to the receiver. Allow the receiver to warm up.
Adjust the Transistor Bias Control (R2) for a reading of 400MA on the milliammeter.



DIAL CORD STRINGING



DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BL6	8.2Meg	7.8Meg	0Ω	1.2Ω	↑ 51Ω	↑ 40Ω	0Ω
V2	12AD6	47K	.5Ω	0Ω	1.2Ω	↑ 54Ω	↑ 40Ω	1Meg
V3	12BL6	1.7Meg	0Ω	0Ω	1.2Ω	↑ 47Ω	↑ 40Ω	0Ω
V4	12BJ6	1Meg	0Ω	0Ω	1.2Ω	8.8Meg	500K	↑ 1Meg
V5	12K5	10Ω	2.2Meg	0Ω	1.2Ω	.4Ω	.4Ω	↑ 70Ω

TRANSISTOR RESISTANCE NOT TAKEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE

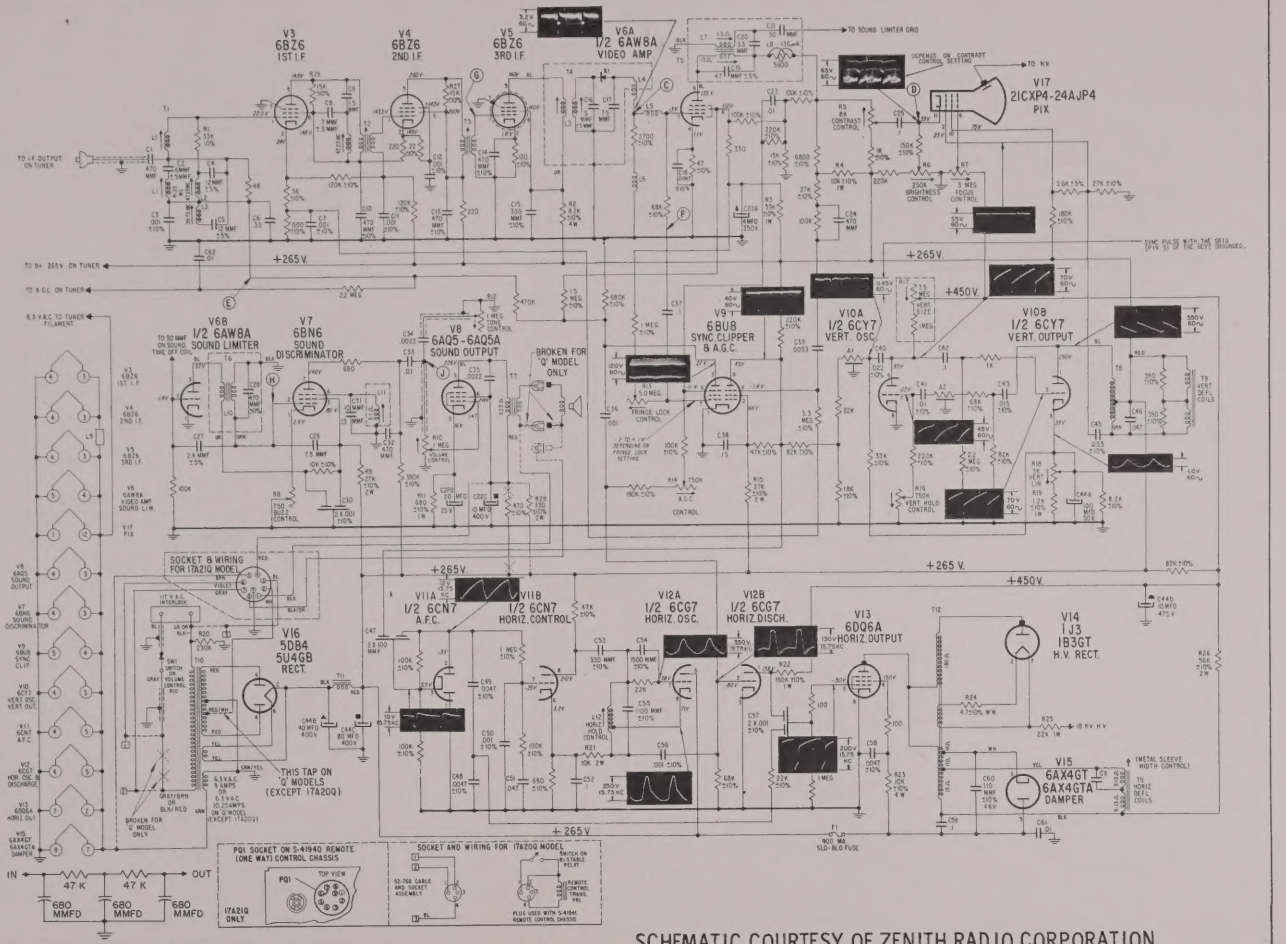
↑ MEASURED FROM JUNCTION OF L4 & L5

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ZENITH

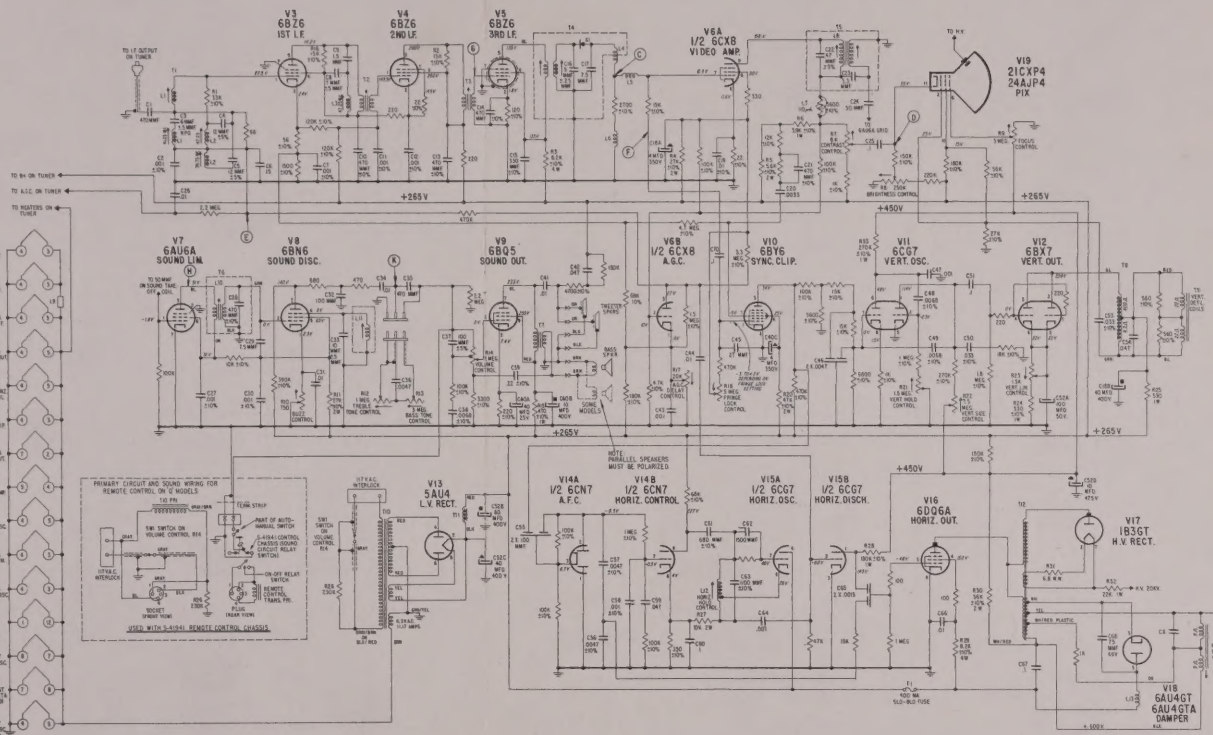
MODELS	CHASSIS
A2221J, Y	17A20
A2223E, H, R, Y	"
A2245E, R	"
A2250M, R	"
A2251E, R	"
A2282E, R	"
A2673E, R	"
A3000E, R	17A21Q
A3001E, H, R	17A20Q
A3004, E, R	17A21Q
A3008E, R	17A20Q


V3 6BZ6 1ST I.F.
V4 6BZ6 2ND I.F.
V5 6BZ6 3RD I.F.
V6A 1/2 6AW8A VIDEO AMP.
V17 21CXP4-24AJP4 PIX
+265V
+450V
V6B 1/2 6AW8A SOUND LIMITER
V7 6BN6 SOUND DISCRIMINATOR
V8 6AQ5-6AQ5A SOUND OUTPUT
V9 6BU8 SYNC. CLIPPER & A.G.C.
V10A 1/2 6CY7 VERT. OSC.
V10B 1/2 6CY7 VERT. OUTPUT
V11A 1/2 6CN7 A.F.C.
V11B 1/2 6CN7 HORIZ. CONTROL
V12A 1/2 6CG7 HORIZ. OSC.
V12B 1/2 6CG7 HORIZ. DISCH.
V13 6DQ6A HORIZ. OUTPUT
V14 1J3GT H.V. RECT.
V15 6AX4GT 6AX4GTA DAMPER
V16 5D84 5U4GB RECT.
SOCKET & WIRING FOR 17A21Q MODEL
THIS TAP ON 'Q' MODELS (EXCEPT 17A20Q)
BROKEN FOR 'Q' MODEL ONLY
BROKEN FOR 'Q' MODEL
PQ1 SOCKET ON S-41940 REMOTE (ONE WAY) CONTROL CHASSIS
17A21Q ONLY
SOCKET AND WIRING FOR 17A20Q MODEL
PLUG USED WITH S-41841 REMOTE CONTROL CHASSIS
IN
OUT
47 K
47 K
680 MMFD
680 MMFD
680 MMFD

SCHEMATIC COURTESY OF ZENITH RADIO CORPORATION

ZENITH

MODELS	CHASSIS
A2329J	19A20
A2330E, H, R	"
A2358E, R	"
A2359E, H, R	"
A2362M, R	"
A3010E, H, R	19A20Q
A3011, E, Y	"
A3012H, R	"
A3013H	"
A3014H, R	"
A4007E, R	"


V3 6BZ6 1ST I.F.
V4 6BZ6 2ND I.F.
V5 6BZ6 3RD I.F.
V6A 1/2 6GX8 VIDEO AMP.
V19 21CXP4 24AJP4 PIX
V7 6AU6A SOUND LIM.
V8 6BN6 SOUND DISC.
V9 6BQ5 SOUND OUT.
V6B 1/2 6GX8 A.G.C.
V10 6BY6 SYNC. CLIP.
V11 6GC7 VERT. OSC.
V12 6BX7 VERT. OUT.
V13 5AU4 L.V. RECT.
V14A 1/2 6CN7 A.F.C.
V14B 1/2 6CN7 HORIZ. CONTROL
V15A 1/2 6GC7 HORIZ. OSC.
V15B 1/2 6GC7 HORIZ. DISCH.
V16 6DQ6A HORIZ. OUT.
V17 1B3GT H.V. RECT.
V18 6AU4GT 6AU4GTA DAMPER
+265V
+450V
+500V
PRIMARY CIRCUIT AND SOUND WIRING FOR REMOTE CONTROL ON Q MODELS
TO PIX
TUNE STRIP
PART OF AUTO-MANUAL SWITCH
S-41041 CONTROL CHASSIS SOUND CIRCUIT RELAY SWITCH
ON-OFF RELAY SWITCH
TO REMOTE CONTROL TRANS. PRI.
SW1 SWITCH ON VOLUME CONTROL R14
SOCKET (FRONT VIEW)
PLUG (REAR VIEW)
USED WITH S-41041 REMOTE CONTROL CHASSIS
NOTE: PARALLEL SPEAKERS MUST BE POLARIZED.
TO H.V.
TO I.F. OUTPUT ON TUNER
TO B+ ON TUNER
TO A.G.C. ON TUNER
TO HEATERS ON TUNER

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L. F. BLANKENSHIP
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DENVER, COLORADO

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